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ABSTRACT

This annotated bibliography of research in agricultural education includes abstracts of 103 studies completed during 1969-70 in 11 of the 13 states of the American Vocational Association Central Region. They are arranged alphabetically by author and indexed by subject. A list of 97 studies in progress in 1970-71 is also included. All studies reported are available for loan from university libraries, departments of agricultural education in universities, and state departments of vocational and technical education. The abstracts are organized according to each study's purpose, method, and findings. (GB)

Departmental Report No. 31

SUMMARIES OF STUDIES IN AGRICULTURAL EDUCATION CENTRAL REGION 1969-70

AN ANNOTATED BIBLIOGRAPHY OF STUDIES IN AGRICULTURAL EDUCATION

The Department of Agricultural Education
College of Agriculture
The University of Nebraska
Lincoln, Nebraska 68503
December, 1970

SUMMARIES OF STUDIES IN AGRICULTURAL EDUCATION

CENTRAL REGION

1969-70

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Issued by

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INTRODUCTION

This compilation of research in agricultural education includes abstracts of 103 studies completed during 1969-70 in 11 of the 13 states of the Central Region. This compares with 82 studies reported last year, 66 the year before, and 55 in 1967. They are arranged alphabetically by author and indexed by subject. A list of studies in progress in 1970-71 is also included.

Abstracts of research completed in 1969-70 were reported by teacher education institutions and state departments of education in the region. All studies reported are available for loan from university libraries, departments of agricultural education in universities, and state departments of vocational and technical education.

This compilation of abstracts of research in agricultural education is an activity of the Research Committee of the Agricultural Education Division of the American Vocational Association.

James T. Horner, National Chairman and
Central Regional Representative
Research Committee
Agricultural Education Division
American Vocational Association

December, 1970

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SUMMARIES OF STUDIES, 1969-70

1. AHRENS, Donald L., Experimental Evaluation of Prepared Lesson Plans on Instruction in Vocational Agriculture. Dissertation, Ph.D., 1970. Library, Iowa State University, Ames.

Purpose. The purpose of this study was to experimentally determine the value of prepared lesson plans on instruction in vocational agriculture.

Method. Twelve schools were randomly selected from a list of Iowa high schools offering an approved vocational agriculture program. Six of the schools were randomly assigned to the prepared lesson plan treatment group and six were randomly assigned to the control group. Data were gathered from 432 students and the 12 instructors through extensive testing, use of questionnaires, and from school records. Selected areas of animal health, commercial fertilizers, small gasoline engines, and farm credit were used to provide uniform instruction.

Findings. The findings of this study were summarized in the following statements: (1) Students in the treatment and control schools were essentially equal before the start of the experiment in knowledge of the four subject matter areas; (2) Significant gain in knowledge was observed for the students in both groups over the three-week experimental period; (3) No significant differences were found between the treatment and control groups in the magnitude of change in knowledge from the pretest to posttest except in the small gasoline engines unit. The control schools in this unit had a significantly greater magnitude of change; (4) The more significant variables effecting student achievement include: Nebraska Agricultural Achievement Test, DAT-Mechanical, Semesters of Vocational Agriculture, Semesters of Mathematics, noncrop acres and the pretest; (5) There was no significant difference in achievement of the students taught with prepared lesson plans compared to those taught by the traditional method; and (6) Use of prepared lesson plans could have been more accurately determined if the experiment had been designed to permit the observation of individual students rather than classes.

2. ALHASHIMI, Talib A., Competencies Needed to Train Prospective Ornamental Horticulture Managers with Implications for Curriculum Development for East Texas. Dissertation, Ed.D., 1971. Library, University of Missouri, Columbia.

Purpose. To secure information about the competencies needed to train prospective managers in ornamental horticulture with implications for curriculum development for East Texas.

Method. Data were obtained through the adaptation of a personal interview schedule with present and prospective employers in ornamental horticulture for Anderson, Angelina, Cherokee, Nacogdoches, and Smith counties in East Texas. The population was all ornamental horticulture businesses--wholesale and retail, which included florists, nurserymen, landscape specialist gardeners, architects, and garden centers in the five county area. A factor analysis was used to determine the essence of the 123 variables (competencies) among fifty-one observations (cases). Q-analysis methodology was used to yield a factorscore for each subject in the study in order to assist the researcher in identifying the relative importance of each subject within each factor (type).

Findings. The 123 abilities or competencies were grouped into eleven categories. The Q-analysis factor data showed that the positive agreements would rank the eleven categories of abilities in the following order: (1) landscaping; (2) floriculture and flower arrangement; (3) business principles; (4) horticultural practices; (5) pest control; (6) plant propagation; (7) nursery management; (8) lawn and turf management; (9) soils and fertilizers; (10) plant environment; (11) horticultural mechanics. Positive agreements appeared on some abilities in all eleven of the categories.

3. ARCHER, Beverly Byrd, Agricultural Work Experience Programs for Academically Handicapped Youth in Secondary Schools. Dissertation, Ph.D., 1970. Library, The Ohio State University, Columbus.

Purpose. To investigate the relationship between enrollment in agricultural work experience programs and the social behavior, academic performance, and vocational preparation of academically handicapped youth and to describe the nature of selected agricultural work experience (AWE) programs, including provisions for supervised work experiences.

Method. A study group and a comparison group were selected from seven high schools located in predominantly rural areas of Ohio. The study group consisted of 85 academically handicapped students who were enrolled in the special agricultural work experience programs. The comparison group was

comprised of 74 students selected from the regular vocational agriculture program whose environmental and socio-economic backgrounds were similar to those of the academically handicapped students. Descriptive information was obtained concerning the schools and the nature of the AWE programs. Data pertinent to the social behavior, academic achievement and vocational development of the students were obtained from school records and from teachers' and students' responses to a series of instruments. Data were collected on the two groups of students for the school year prior to the enrollment of academically handicapped students in the AWE programs (1968-69) and for the school year in which these students were enrolled in the AWE program (1969-70).

Findings. A majroity of the principals and special vocational agriculture teachers indicated that the primary purpose of the AWE program was to use instruction in agriculture as a vehicle to stimulate students to achieve academically as well as to prepare them for entry into occupations requiring knowledge and skills in agriculture. Instructional topics taught in the AWE programs were both agricultural and non-agricultural in nature with cooperative work experiences being most frequently provided by farm equipment dealers, feed and seed dealers, service stations, and automobile dealers. The principals of the high schools indicated that the most important factor influencing the effectiveness of AWE programs was a teacher who is properly prepared and who desires to teach academically handicapped students.

Although both groups of students scored relatively low on a scale indicating motivation toward school, students enrolled in the AWE programs had a statistically significant lower level of motivation toward school than did the comparison group. The academically handicapped students did not participate in school service activities, student organizations, or community activities to a significantly greater extent than the comparison group prior to or during enrollment in the AWE programs. In 1969-70 the proportion of the AWE students reporting active membership in the FFA was 26 per cent lower than the proportion of the students in the comparison group who were active members. The study group received higher ratings by teachers on citizenship during the year of their enrollment in the AWE programs than they received for the previous year. The comparison group generally maintained the same citizenship rating for both school years.

Prior to their enrollment in the AWE programs, the academically handicapped students had significantly higher rates of absence from school than students in the comparison

group. During the first semester of 1969-70, after enrollment in the AWE programs, there was a marked decrease in the percentage of academically handicapped students who were absent from school ten or more days.

Both groups of students had the same mean grade point average in 1968-69 in English, social studies, mathematics, science and vocational agriculture. Although the difference was not significant, the academically handicapped students had a mean grade point average higher than students in the comparison group for the first semester of 1969-70, the year of their enrollment in the AWE program.

Twenty-nine per cent of the study group and 38 per cent of the comparison group desired to continue their education beyond high school. None of the academically handicapped students indicated a desire to attend a four-year college. The two groups did not differ significantly on their response on the interest in occupational training scale or the attitude toward work scale. Also, the two groups did not differ significantly when they were compared on their levels of interest in five agricultural occupational areas.

4. BALDUS, Francis C., Competencies in Feeder Cattle Management Needed by Farmers. Thesis, M. S., 1969. Library, Iowa State University, Ames.

Purpose. The study was conducted to determine the competencies in feeder cattle management needed by farmers. Secondary purposes were to determine the degree each competency was needed and possessed.

Method. A panel of outstanding beef specialists assisted in developing a list of 46 competencies needed for success in feeder cattle management. The panel included ten cattle feeders and three Iowa State University beef specialists. The list of competencies was included in a questionnaire which was sent to 531 random sample cattle feeders. Useable responses were received from 226 random sample cattle feeders.

Findings. Sixteen of the 46 competencies selected by the panel of specialists were understandings and 30 were abilities.

Of the 16 understandings, the six that were rated with the greatest need were the understanding of: (1) how the economics of cattle feeding operation changes as the length of feeding time increases; (2) the effect of body type on rate of gain and carcass composition; (3) the importance of fresh water and salt; (4) the place of feed additives in beef rations; (5) diseases and parasite control; and (6) the possible reactions by cattle to disease and parasite control chemicals.

Of the abilities the eight rated highest in their degree of need were the ability to: (1) spot trouble in the feedlot in its early stages; (2) determine the value of replacement cattle; (3) recognize "poor doers" and fast gaining cattle; (4) start new cattle on feed properly; (5) obtain and manage a sufficient amount of capital; (6) critically evaluate different markets and bids for selling purposes; (7) produce the kind of product the market demands; and (8) keep costs as low as possible consistent with efficiency, handling ease, and available capital.

A comparison of the differences in mean scores for the degree of competence needed and possessed for each competency revealed that 44 of the 46 competencies had higher mean scores for degree of competence needed than for degree of competence possessed.

5. BARBER, Donald George, Development of a Four Year Course of Study for Vocational Agriculture to Meet the Students' and Communities' Needs. Thesis, M.A., 1969. Library, University of Minnesota, St. Paul.

Purpose. To survey, study, and explore a wide variety of vocational agriculture programs and curriculums so that a comprehensive course of study could be drawn up for Red Wing, Minnesota, that would be flexible and meet the changing needs of the community.

Method. The writer used the Vocational Agriculture Interest Inventory to determine the differences in agricultural interests between farm and non-farm students. A survey was taken of 770 senior high school students to determine their interests in conservation and horticulture. Related agricultural business places in the Red Wing community were surveyed to find the employment potential, and local farm management analysis results were used to find the local agricultural business volume. Several courses of study were reviewed. Other research papers were reviewed to find a vocational agriculture curriculum that would meet the needs of the Red Wing students and community.

Findings. The interests of non-farm and farm students vary significantly. There were more than enough students interested in horticulture and conservation to include units in a course of study. Ample agriculture related employment stations were found to place students for work experience. The volume of agriculture business in the community was substantial.

The solution proposed included 18 controlled semester courses with clearly defined prerequisites. An additional teacher was needed to teach all 18 courses. This would allow for more specialization by each teacher. The students have a wider choice of courses plus more in-depth training in areas which they wish to enroll. The emphasis was placed on making the semester courses vocational with emphasis on learning by doing, and keeping instruction closely tied to the FFA Program of Activities.

6. BELL, Robert L., Relation of Attitude Toward Agriculture to Enrollment in Vocational Agriculture. Thesis, M.S., 1970. Library, Iowa State University, Ames.

Purpose. To determine the attitudes of farm boys and their parents toward farming and occupations in off-farm agriculture. The specific objectives were to determine: (1) attitudes of farm boys and their parents toward farming and off-farm agricultural occupations both as a way of life and as a vocation; (2) differences in attitudes of farm boys and their parents who had and had not enrolled in high school vocational agriculture programs; and (3) differences in attitudes of farm boys and their parents in different economic areas of Iowa.

Method. Four schools conducting approved four-year vocational agriculture programs were randomly selected from each of the five economic areas in Iowa. Six farm boys enrolled in each of the four high school grades were randomly selected to participate in the study. Three of the students in each class were enrolled in vocational agriculture classes. A survey instrument to measure attitudes toward farming and off-farm agricultural employment was developed and administered to each of the students and their parents by the vocational agriculture instructor in each school. Included in the study were 240 vocational agriculture and 240 non-vocational agriculture students and their parents.

Findings. Significant differences were observed among group means in attitudes toward farming generally and toward farming as a vocation and way of life. In each instance, fathers of students enrolled in vocational agriculture had the high mean scores and the students had the low mean scores. The mean scores of the students were most nearly like those of their fathers. No differences were detected among groups when similar comparisons of attitudes toward off-farm agricultural employment were compared for the students and their parents in the non-vocational agriculture groups.

Comparisons among group means by Iowa economic areas revealed significant differences in attitudes toward agriculture, farming, and off-farm agricultural employment generally, and attitude toward farming and off-farm agricultural employment as a way of life. Group mean scores for the respondents from the western livestock and northeast areas were significantly lower than the other areas studied on attitudes toward agriculture and farming. Group mean scores for the southern pasture areas were significantly higher on attitude toward farming as a vocation and significantly lower on attitude toward off-farm agricultural employment as a vocation and way of life when compared to the group mean for the other economic areas.

7. BENDER, Ralph E., The 1969 Occupations of Recent Graduates of Vocational Agriculture in Ohio. Staff study, 1970. The Ohio State University, Columbus.

Purpose. To identify the occupations as of March, 1969, of graduates of vocational agriculture in Ohio who had been out of school one to five years.

Method. The survey included 1,672 graduates of 102 departments selected at random from the fourteen supervisory districts in Ohio. This survey is the continuation of similar studies conducted in previous years.

Findings. Slightly more than 50 per cent of the graduates out of school one to five years were engaged in farming and farm related occupations. Less than one per cent of the graduates were unemployed.

Twenty-eight per cent of the graduates out of school one year and 30 per cent of those out of school five years were in farming. Approximately 50 per cent of the farmers were farming on a full-time basis. Four of each five graduates engaged in farming were doing so on the home farm.

The percentage of graduates involved in non-agricultural work the first year out of school was 30 per cent compared to 44 per cent for those out of school five years. A large proportion of their occupations require aptitude and ability in mechanics; some of the common types of employment involve skills in working with people.

Thirty per cent of the graduates out of school one year were in college or technical schools. Of this group, more than 50 per cent were pursuing additional study in agriculture.

An analysis of the data accumulated during the twelve-year period of the survey indicates that fewer graduates are becoming established in farming; increasingly more of the graduates engaged in farming are getting started on their home farms; an increasing percentage of the graduates are becoming employed in off-farm agricultural and non-agricultural occupations; and more graduates are enrolling in college and technical schools.

8. BENDER, Ralph E. and WARMBROD, J. Robert, Agricultural Occupations Program Development in Area Vocational Schools. USOE Project No. 7-0773, 1969. The Ohio State University, Columbus.

Purpose. To conduct a national seminar designed to identify programs in agricultural occupations which should be an integral part of instructional programs in area vocational centers, to develop techniques and procedures for planning and conducting agricultural occupations programs in area vocational centers, and to develop further the competence of leaders in agricultural education for giving direction to the development and operation of agricultural occupations programs in area vocational centers.

Method. Participants were selected from state vocational education administrators' nominations of persons whose responsibilities include administration, supervision, planning, conducting, and evaluating instructional programs in area vocational centers. Eighty-five participants from 36 states, nine consultants, and the seminar staff participated in the seminar held at Bowling Green (Ohio) State University, September 15-20, 1968. Twenty-six persons including consultants, seminar participants, and the seminar staff participated in a two-day follow-up conference held March 17-18, 1969, at The Ohio State University.

Findings. Guidelines, which constitute the findings and recommendations of the national seminar, were developed for the following aspects of agricultural occupations program development in area vocational centers: developing procedures for planning a state program of agricultural education; coordinating agricultural education programs in area centers and participating schools; evaluating agricultural occupations programs; developing curriculums and teaching; selecting, recruiting, and preparing teachers; and developing adult and continuing education programs.

Participants' reactions, assessed periodically during the seminar and at the close of the seminar, indicated a high degree of satisfaction with the organization, content, and activities of the seminar. A follow-up of participants three months after the seminar indicated that participants had informed other leaders in agricultural education, vocational education, and general education of the findings and recommendations of the seminar, that they were actively engaged in the development and implementation of agricultural occupations programs in area vocational centers, and that they were engaged in activities which further enhance their ability to assume leadership in the development and implementation of agricultural occupations programs in area vocational centers.

9. BENDIXEN, Joe F., Experimental Evaluation of the Effectiveness of Projected Transparencies on Instruction in Vocational Agriculture. Dissertation, Ph.D., 1970. Library, Iowa State University, Ames.

Purpose. The purpose of this study was to determine the effectiveness of overhead projected transparencies on instruction in vocational agriculture. A secondary purpose was to determine the effectiveness of color when used on overhead projected transparencies.

Method. Twelve schools meeting criteria for the study were randomly divided into two equal groups. One group was used as the control group while the other tested the effectiveness of transparencies. The schools using transparencies were further subdivided into three equal groups. One group received black on colored background transparencies, while the third group received a mixed variety of transparencies. A total of 738 transparencies were used. A written test for each subject matter area (animal health, commercial fertilizer, small gasoline engines, and farm credit) was used as a pretest and again as a posttest. Information pertaining to student I.Q., interest and social-economic background was obtained in addition to teacher attitude and achievement scores.

Findings. Pretest scores revealed no significant difference in each subject area. No significant difference was found between the control and treatment groups of schools using composite mean posttest scores for the four subject matter areas.

When the various types of transparencies were tested, it was revealed that mean posttest scores were higher for the two groups of students who observed colored background and mixed variety transparencies. However, in an analysis of variance test, no significant differences were found among the various types of transparencies.

In an analysis of factors related to student achievement when overhead projected transparencies were used, no major differences were found between the treatment and control schools on selected variables.

10. BICE, Garry Robert, The Relationship of Group Structural Properties and Communication Behavior Patterns to Opinion Leadership Among Teachers. Dissertation, Ph.D., 1970. Library, The Ohio State University, Columbus.

Purpose. To identify structural properties and communication behavior characteristics of the school systems in which opinion leaders and isolates among teachers of vocational agriculture work. The specific objectives of the study included determining if state level opinion leaders and isolates maintain the same degree of opinion leadership within their local school, identifying group structural properties associated with opinion leadership and identifying key communication (peer choice) patterns associated with opinion leadership.

Method. The study was based on data received from 215 teachers working in schools where four randomly selected teachers of vocational agriculture who were opinion leaders among other agriculture teachers at the state level worked. The 215 teachers represented 86 per cent of all teachers employed in those schools. In addition, data were received from 57 teachers working in schools where four randomly selected teachers of vocational agriculture who were isolates among other agriculture teachers at the state level worked. The 57 teachers represented 84 per cent of all teachers employed in those schools. The investigator personally administered the questionnaires to all teachers in a group interview situation. Teachers were placed into opinion leader and peer categories on the basis of the sociometric technique of identifying opinion leaders. Those individuals nominated as sources of advice and information by at least ten per cent of their peers were considered to be opinion leaders. In schools where there were less than 30 teachers, a teacher had to be nominated at least three times to be considered an opinion leader.

Findings. Conclusions with attendant implications that applied primarily to programs of agricultural education were drawn. Teachers of vocational agriculture who are opinion leaders at the state level are not necessarily opinion leaders among all teachers at the local level but are likely to be opinion leaders among other vocational teachers at the local level. Teachers of agriculture who are opinion leaders among other teachers of agriculture at the state level work in schools where there is more upward communication among teachers in terms of innovation awareness. Teachers of agriculture who are opinion leaders work in schools where a greater percentage of the teachers are opinion leaders, there is a lower ratio of number of cliques to number of opinion leaders, there is a greater percentage of teachers in primary liaison positions and a smaller percentage of the teachers are isolates. Teachers of vocational agriculture who are opinion leaders at the state level teach in schools where the teachers have taught a fewer number of years in their current schools; teachers of agriculture who are opinion leaders teach in larger schools.

11. BJORAKER, Walter T. and KRAMER, Ralph A., Influences of Vocational Agriculture in the Kiel, Wisconsin, Community: A Case Study. Nonthesis Study, 1970. University of Wisconsin, Madison.

Purpose. The main purpose of the study was (1) to assemble basic information on former vo-ag students of the Kiel High School, and (2) to determine what impact the vocational agriculture program started in 1948 has had on the Kiel community. The impact was measured in terms of retension of former students in the community, occupations entered, and the taxpayer role of former students who are now farming.

Method. The complete file of all former vo-ag students has been kept up-to-date annually at the Kiel High School by the local instructor. These data were analyzed. In addition, assessed valuation data were secured from the Kiel public school office and the county treasurers of Sheboygan, Calumet, and Manitowoc counties.

Findings. Of the 931 male graduates since 1948, 424 or 45 per cent have taken at least one year of vo-ag, but had not graduated from high school, giving a total population of 509. Of these 103 (20.4 per cent) are farming with 89 of them in the local district; 200 (39.2 per cent) nonfarm occupations but most of them remained in the local area

and use vo-ag skills such as welding, woodworking, etc., for occupational entry; 47 (9.4 per cent) are in agri-business occupations; 89 (17.5 per cent) are still high school students; 38 (7.4 per cent) are in military service; 24 (4.7 per cent) are in post high school and college programs; and 8 (1.4 per cent) are deceased. The 89 men farming in the Kiel district have an assessed property valuation that represents 9.5 per cent of total district, or 16.1 per cent of the rural assessed valuation. Only three persons entered farming in the school district in the past three years who did not have vo-ag. Of all the former students studied, none were unemployed.

Findings of this case study suggest to the writers that in this community, and in other communities with similar characteristics: (1) Vocational education in agriculture has made a major contribution in the developing of young men for community leadership and entry into both farming and off-farm agricultural occupations; and (2) For those former students who seek nonagricultural occupations, many do in fact benefit from their vo-ag education, especially farm mechanics training, as they enter the occupation of their choice. Thus, as youth go through a period of career exploration and choice, they benefit from vo-ag though they may not continue in agricultural pursuits.

12. BLANTON, Lloyd Houston, Communication Networks and Innovative Potential of a State Division of Vocational Education. Dissertation, Ph.D., 1970. Library, The Ohio State University, Columbus.

Purpose. To describe the degree of association between selected communication network characteristics and attitudes of personnel in a state division of vocational education, and to assess the rigidity of openness-to-change and dynamic-tractive supervisory attitudes of those personnel.

Method. Data were secured from the professional staff of a state division of vocational education through the use of mail questionnaires and interview schedules. A time and event sample of communication activity, sequenced through the use of a Latin Square Design, was conducted over a four-week period during which 97 per cent of the personnel participated. The designs used to assess the rigidity of attitudes included the one group pretest-posttest design and the posttest only control group experimental design. Internal validity threats were controlled largely through research design and random assignment of respondents to experimental and test groups. Instruments used for the study

included (1) a communication log, (2) an openness-to-change questionnaire, (3) a dynamic-tractive attitude questionnaire, and (4) an awareness-to-literature interview schedule.

Findings. Eight research and accompanying null hypotheses were analyzed. Of the eight null hypotheses, three were rejected on the basis of statistical tests conducted at the .05 level of significance. For the research hypotheses which were not supported by statistical analyses, the data distributions pointed in the direction of the research hypotheses.

Findings of the study led to the following conclusions: (1) attitudes conducive to innovative potential may be changed by selected stimuli; (2) inter-subsystem communication within the state division boundaries was virtually non-existent; (3) professional literature saw limited use by state division personnel; (4) limited contact was observed between the state division personnel and personnel of other institutions at either the state, regional, or national levels; (5) personnel at the lower organizational levels of the state division were less aware of the objectives of recent federal vocational education legislation; (6) personnel attitudes were conducive to innovative potential; and (7) attitudes toward change were more positive for personnel at the higher structural positions of the state division of vocational education.

13. BORCHER, Sidney D., Experimental Evaluation of Demonstrations in Teaching Vocational Agriculture. Dissertation, Ph.D., 1970. Library, Iowa State University, Ames.

Purpose. The purpose of this study was to evaluate the effectiveness of demonstrations on instruction in vocational agriculture.

Method. The experiment was conducted in 12 randomly selected Iowa high schools offering approved four-year vocational agriculture programs during a three-week period. Involved in the study were the four secondary grade levels and four appropriate subject matter units.

Six schools were randomly assigned to the demonstration and control groups. Thirty-nine demonstrations were developed and used in teaching the four subject matter units (animal health, commercial fertilizers, small gasoline engines, and farm credit) in the demonstration schools. The 554 students involved in the experiment were measured on aptitudes, interests, abilities, and on prior knowledge of subject matter. A questionnaire was also administered to each student to obtain data on the student's socio-economic background.

Findings. Analysis of variance of the pretest scores revealed no difference in the two groups' knowledge of the subject matter. There was a highly significant gain in knowledge in all four subject matter areas from the pretest to the posttest.

Although there were no significant differences in achievement between the two groups at the .05 level of confidence, analysis of covariance resulted in the demonstration group's adjusted mean posttest scores being higher than those for the control group in all subject matter areas.

Pretest, outdoor interest, mechanical interest, DAT-mechanical reasoning, and the number of siblings were highly correlated with posttest scores for the demonstration treatment group. All correlations were positive except those involving the number of siblings.

14. BOTHWELL, David L., Selecting Criteria and Evaluating Young Farmer Classes in Kansas. Master's Report, 1970. Library, Kansas State University, Manhattan.

Purpose. To determine the characteristics that vocational agriculture teachers, high school superintendents and Young Farmers felt were essential for successful Young Farmer classes and the degree of importance of these characteristics.

Method. A questionnaire was developed with a list of criteria believed to be essential for the successful operation of Young Farmer classes. The questionnaire was pretested by a representative group of eight teachers and administrators. The revised questionnaire contained twenty criteria. The respondents indicated whether they would be able to evaluate the criteria and indicated the importance of each. The questionnaire was sent to all 50 of the Kansas vocational agriculture teachers who conducted Young Farmer classes during the 1968-69 school year and their administrators. Each vocational agriculture teacher designated one Young Farmer to complete the questionnaire, and 45 usable returns were received. From the 145 receiving questionnaires, 127 or 87.6 per cent were returned.

Findings. The following criteria was determined to be important: (1) members should recommend course content; (2) instructor and Young Farmer committee should plan and schedule classes; (3) Young Farmers should attend 75 per cent or more of the classes; (4) members should be given an opportunity to evaluate classes; (5) objective should be established and carried out; (6) one social event should be held each year for Young Farmers and wives; (7) Young

Farmers classes should be provided with adequate physical facilities by the school at no charge; (8) at least two Young Farmers should attend the state tour and convention; (9) administration and school board should be informed of all Young Farmer activities; and (10) a Young Farmer organization should be chartered.

The following criteria was determined to be not important or had a negative value: (1) a minimum of four classes should be presented by the instructor; and (2) Young Farmers should receive more than one-half their income from farming.

15. BREMNER, Douglas Clayton, A Study to Determine the Relative Influence of Selected Factors and People Upon the Enrollment Decisions of the Freshman Class of 1969-1970 in the College of Agriculture at North Dakota State University. Colloquim Paper, M.S., 1970. North Dakota State University, Fargo.

Purpose. To determine the relative influence of selected factors and people upon the enrollment decisions of the freshman class, 1969-1970, in the College of Agriculture at North Dakota State University.

Method. A survey method, based on a rank order questionnaire, was used to obtain data from the 202 freshmen enrolled in the College of Agriculture at North Dakota State University in September 1969. The collected data were tabulated by the number of first rankings and by an inverse ranking to obtain a weighted value.

Findings. The most influential persons as rated by the freshmen in their decisions to attend North Dakota State University were parents. The vocational agriculture teachers were second in first rankings of responses as influencing the enrollment decisions of the students. The primary reason many of the freshmen came to North Dakota State University was the opportunity afforded to study or major in the College of Agriculture. The fact that tuition is cheaper than going out of North Dakota for resident students was second in descending order of importance.

16. BRENNER, Edward F., A Study of Curricular Interests as Expressed by Forty-two Boys Enrolled in the Vocational Agriculture Program in the Ness City High School in 1969-70. Thesis, M.S., 1970. Kansas State University, Manhattan.

Purpose. (1) To attempt to determine the curricular interests relating to the development of vocational agriculture students in Ness City High School; (2) to discover why more students were enrolled in the ninth grade vocational agriculture program; and (3) to discover areas of student interest in an attempt to center the vocational agriculture curriculum of Ness City High School on the basis of student interests and needs.

Method. Data were collected by the Interview Schedule and Checklist developed by Dr. James Albracht of Kansas State University. Data were obtained from forty-two (100 per cent) of the students enrolled in vocational agriculture at Ness City High School.

Findings. (1) It was found that students in all four classes rated vocational agriculture first in interest of the five departments studied; (2) freshmen and sophomore classes indicated more interest in working out-of-doors, working with agricultural machinery and motors, working with welders and shop equipment and repairing electric motors and equipment; and (3) juniors had the highest grade point average and the highest average IQ and appeared to be the least interested in working with agricultural machinery and motors. They were most interested in horticulture, record keeping, selecting and raising crops and farm management.

BROWN, Norman Allen (See p. 96)

17. BUDKE, Wesley Eugene, Guidelines for the Development of Prevocational Education at the Junior High School Level. Dissertation, Ph.D., 1970. Library, The Ohio State University, Columbus.

Purpose. To develop guidelines for use in organizing, operating and administering prevocational education programs at the junior high school level. Specific objectives of the study included the identification of important characteristics of existing prevocational education programs; the identification of unique and different approaches for initiating and conducting prevocational education programs; the synthesis of tentative guidelines which merit wide application for junior high school prevocational education; and the selection, refinement and finalization of the guidelines with the assistance of a jury of experts.

Method. State departments of education throughout the United States were contacted to identify ongoing junior high school prevocational education programs. From a review of literature and information received from existing prevocational education programs, thirteen major program areas were identified. A jury of experts evaluated the clarity and appropriateness of the program areas, ranked them in the order in which they should be considered when developing new programs, and indicated the relative importance of each program area. On a second instrument which included guiding statements for each major program area, the jury indicated their degree of agreement with each statement using a four point agreement scale.

Findings. Seventy-four of the original eighty-five guiding principles were agreed upon by the jury and appear in the final set of guidelines for prevocational education in the junior high school. The study revealed that programs of junior high school prevocational education were relatively new and exhibited many different characteristics and forms, although several common characteristics were identified. Most programs utilized about one-sixth of the total student classtime with occupational orientation, provided information concerning all skill levels of occupations, used something other than verbal discussions such as field trips and resource people to provide this information, and emphasized both career orientation and exploration.

Most of the junior high school prevocational education programs appeared to be based upon the developmental theory of vocational choice and development. Two basic approaches seemed to be used in providing junior high school prevocational education: the interdisciplinary approach and the separate course approach. The trend seemed to be toward using the interdisciplinary method.

The following thirteen areas were identified as being important to the development of junior high school prevocational education programs: program objectives, program design, instructional staff selection, grade level of student involvement, staff training, financing, curriculum and activities, community involvement, student selection, facilities and equipment, guidance and counseling, administration and supervision, and program evaluation.

18. BUNDY, C. E. and KAHLER, A. A., An Experimental Evaluation of the Effectiveness of Selected Techniques and Resources on Instruction in Vocational Agriculture. Staff study, 1970. Iowa State University, Ames.

Purpose. To evaluate the effects of selected treatment and classification factors and their interactions on instruction in the vocational agriculture program. The principle objectives of the study were: (1) to test new instructional techniques and resources (audio-tutorial, single concept film, prepared lesson plan, field trip, demonstration, video tape, overhead projected transparency and traditional) in the teaching of vocational agriculture in Iowa; (2) to determine the effectiveness of these techniques and resources on student achievement at each of the four high school grade levels in subject matter studied at each grade level; and (3) to compare the effectiveness of individual and group instructional techniques and resources on student achievement in vocational agriculture.

Method. The study was limited to an investigation of eight instructional approaches in 48 randomly selected Iowa high school vocational agriculture programs that were approved four-year programs with enrollments of 35 students or more. The experiment covered a time period of 15 consecutive instructional days and instructional materials designed by the investigators specifically for use in the study. A pretest-posttest control group design was used to measure achievement and differences due to treatment effect.

Findings. Analysis of the pretest and posttest mean scores by treatment groups revealed differences between group means in all subject matter areas. When these differences were tested using the analysis of various technique, no significance was observed. Two-factor experiments using repeated measures of pretest and posttest mean scores revealed highly significant F-values for treatment pre-posttest score differences.

Stepwise regression analyses of all organismic and concomitant variables identified variables having the most effect on the variance among group posttest mean scores. When these variables were used as covariates in analysis of covariance tests, non-significant F-values were derived for the animal health, small gasoline engines and farm credit units of instruction. Significance was observed for the commercial fertilizer unit when controlling on DAT--Abstract Reasoning score, pretest score, and crop acres, on the students' home farms. In all four subject matter areas, the adjusted control posttest means were lower than the original control means. Adjusted treatment posttest means varied, but, in the main, were higher than the original treatment means.

19. CAMPBELL, Robert Lee, The Effects of Videotaped Instruction on the Cognitive and Affective Learning of College of Agriculture Students. Dissertation, Ph.D., 1970. Library, The University of Missouri, Columbia.

Purpose. To compare the effectiveness of three methods of instruction and two styles of presentation as applied to the teaching of two units of agricultural subject matter.

Method. A replicated 2x3 factorial design was used with two treatment variables, style of presentation and method of instruction, being employed at two and three levels, respectively. Each of the two units of instruction were presented live by method 1, lecture, method 2, demonstration, and method 3, student participation. Videotapes were made of the live presentations and replayed for the students assigned to the three remaining groups. The units of instruction selected for this study were: (1) Corn Production; and (2) Production of Soybeans and Small Grains. The sample was composed of sixty-six freshmen and sophomore students who enrolled and completed Crop Production 126 at Wisconsin State University-Platteville during the spring semester, 1969. Students were assigned to one of six treatment groups and treatments were randomly assigned to groups. Pretests were used to determine the homogeneity of the groups. Where the within group variance was found to be significant, posttest results were analyzed by analysis of covariance using pretest scores as covariates. Four dependent variables were used. They were: (1) cognitive recall score, (2) cognitive comprehension score, (3) total cognitive score, and (4) affective score.

Findings. All three methods of instruction were equally effective regardless of the unit of instruction or the criterion measure used. Students in the videotaped groups learned as much as those in the live groups, again, regardless of the dependent variable.

The interaction of method of instruction and style of presentation had a significant influence on the scores of students on tests designed to measure cognitive learning at the comprehension level for the second replication.

The attitudes of students toward videotaped instruction were not significantly affected by the treatments. Comprehension scores were significantly higher than recall scores with the exception of one group taught by a videotaped teacher demonstration in the second replication. The comprehension test appears to offer researchers an improved alternative when measuring the effects of teaching. There was no difference in the performance of vo-ag vs. non vo-ag students on the criterion tests.

20. CARLSON, Arnold John, Machine Costs and Field Labor Requirements for Specific Crops in the Wells, Minnesota, Area. Thesis, M.A., 1970. Library, University of Minnesota, St. Paul.

Purpose. To determine if a new method could be used to calculate more accurate machinery costs for the production of specific crops in the Wells area and also to determine if a more accurate method could be used to separate the machinery costs used for livestock from those used for crops.

Method. A survey was conducted on twenty-eight farms in the Wells area to determine the various implements used, the size of each implement, the number of times each operation was performed, and the speed of travel of each implement. This was done to determine what the field labor requirements were to produce each crop. The field labor requirements were then compared to those used in the 1968 Vocational Agriculture Farm Management Program.

Additional information was also gathered from twenty of the twenty-eight farms that had a farm business analysis. This information included all crop machinery expenses such as gas, depreciation, repairs, and investment in machinery. The percentage of the auto, truck, tractor, and crop machinery used for producing crops was also included. Using these costs and the field labor requirements the farmers' machinery costs were calculated. These machinery costs were then compared to the costs determined by use of the 1968 Vocational Agriculture Farm Management Program formula.

Findings. It was determined that a great variation existed from farm to farm and from crop to crop in both field labor requirements and machinery costs. Crops such as alfalfa hay and corn silage which were grown on less acres and with less mechanization had a larger variation in machinery costs than corn and soybeans which were more highly mechanized and grown on almost every farm. The machinery costs appeared no more accurate using the new method than using the formula from the 1968 Vocational Agriculture Farm Management Program. Becuase of the far more detailed record system that a farmer would have to employ to arrive at his own labor requirements, it is not recommended that this method be used by the Vocational Agriculture Farm Management Program. If, however, a very detailed study were done on a few individual farms and positive results were forthcoming, the picture could change.

21. CHYUNG, Woo Hyun, A Study of Vocational Agriculture Student Teaching in the Central Region. Thesis, Ph.D., 1970. University of Minnesota, Minneapolis.

Purpose. To determine the appropriateness of various educational experiences for student teachers in vocational agriculture.

Method. Data for the study were obtained by a questionnaire. The instrument used contained a list of 144 activities. The items were divided into 16 professional experience areas with nine activities in each area. Each of the activities in the experience area was again categorized by the methods for acquiring the experience such as: (1) observe, (2) confer with the supervising teacher, and (3) participate.

The data were obtained from 58 student teachers and 111 vocational agriculture teachers in Minnesota, North Dakota, and South Dakota during the school year 1969.

This study had three objectives. First, to determine if students gave the same priority to each experience before and after the student teaching experience; second, to investigate the relationships of the ratings of the 16 experience areas between various groups; (1) among teachers, (2) among student teachers, and (3) between teachers and student teachers; and third, to determine the essential student teaching experiences as rated by teachers and student teachers just after the student teaching experience.

Descriptive statistical procedures were used to analyze the data. In addition, the T-Test and a Spearman rank order correlation coefficient were applied where appropriate to determine significant differences and establish relationships.

Findings. (1) Student teachers rated the importance of student teaching experiences higher after the student teaching than before student teaching; (2) in general, student teachers after student teaching rated the student teaching activities higher than did teachers; (3) rankings made by teachers toward student teaching experiences seem to be unaffected by: (a) the number of years of teaching experience, (b) size of department, and (c) states where they teach; (4) rankings made by student teachers on 16 suggested experience areas were closely correlated after and before student teaching; (5) there was no indication of different opinions in rankings on 16 suggested student teaching experience areas between teachers and student teachers; (6) student teachers place greatest emphasis on "organize and maintain a department," while teachers emphasized "plan for instruction" as the most important experience area; (7) a low rating was given to the "background"

information in the community" by both teachers and student teachers; (8) 89 out of 144 activities were selected as most highly recommended activities during student teaching; and (9) more chances for conferring with supervising teacher were deemed desirable.

22. COLTRANE, Larry Harold, The Competencies Required for Employment in the Fertilizer Industry in Cherokee and Crawford Counties, Kansas. Thesis, M.S., 1970. Kansas State University, Manhattan.

Purpose. To give guidance to the agricultural occupations part of the vocational agriculture curriculum at Southeast High School. The writer endeavored to secure the opinions of retail fertilizer dealers as to the competencies necessary for employment in the retail fertilizer industry.

Methods. Twelve firms returned questionnaires in the collection of data. The research population consisted of managers or owners of fertilizer firms in Cherokee and Crawford Counties, Kansas. The questionnaire was set up in six different areas and each of the areas was broken down into a number of abilities or understandings.

The firms were divided into two groups, the large and the small, based on the number of employees involved in fertilizer work. The large group consisted of those firms which had more than one person employed full-time in fertilizer work. The small group had one or less full-time fertilizer employee.

Findings. The findings were that most of the employment expansion in the fertilizer area is being planned by the large group. Hiring of competent personnel is a problem with both the large and small dealers, but more of a problem with the large firms. There was not a majority of either group of retailers interested in hiring vocational agriculture students as part-time workers in a learning capacity.

It was found that there was a difference in the attitude of the large and small firms. The larger firms rated the competencies in related areas considerably higher than did the smaller firms. They also desired more competence in plant and soil abilities and understandings. In no competency area did the small firms rate the degree of competency needed higher than did the large firms.

23. COPA, George Hubert. Identifying Educational Systems Inputs Toward Production Function Application in Education. Dissertation, Ph.D., 1970. Library, University of Minnestoa, Minneapolis.

Purpose. To design a model to identify those inputs of an educational system which should be included in the production function for that system and to test and demonstrate that model on a selected education system.

Method. The design proposed as a method of system input identification was to model a generalizable education system. This education system was composed of three major components--inputs, process, and output. Conceptually, the input identification model was to fit the generalizable educational system and in so doing perform two functions. First, it hierarchically and categorically organized the specific inputs and, thereby, permitted system analysis at various levels of aggregation and of various categories of inputs. Second, the model provided a method of separating the relevant and non-relevant inputs.

Stepwise multiple regression procedures were used to select the most important inputs in these aggregates and to select the final system inputs. The criterion used to assess the adequacy of final input identification was the proportion of between program variance in the output measure accounted for by the selected system inputs.

The Minnesota farm management program was chosen as the educational system used to test and demonstrate the feasibility of the model. Its selection was based on several criteria--the most important being available data on system inputs and output. The farm management program was investigated for the year 1967. The 32 programs included in the analysis had ten or more participants completing a farm business record analysis for the year 1967 and had necessary measures on inputs and output. The output measure was mean labor earnings for participants in a given program.

Findings. The results of this study supported the feasibility of the input identification model in identifying important system inputs. However, all results must be kept in perspective by three limitations: only one year for one educational system was investigated, the between program variation, which was the variation investigated in this study, was only 11.1 per cent of the total variation in output measured on an individual basis, and correlation-regression analysis does not establish a cause and effect relationship.

For the farm management program in Minnesota, an initial set of production function inputs has been identified and measured in quantifiable form and the relationship of program output to many specific inputs has been analyzed. This is the first step toward the construction of a production function for this educational system. The large amount of variation within programs and the residual between program variation have been isolated as targets for further research in more complete input identification.

For education in general, a methodology has been provided which will attack the problem of identifying educational system inputs as a step toward production function construction. New research must validate this methodology as a means of input identification which is consistent and interpretable between systems at different levels and having different objectives.

24. CRAGUN, John J., Preferred Pattern of Preparation for Teachers of Technical Agriculture at the Post-High School Level. Dissertation, Ph.D., 1970. Michigan State University, East Lansing.

Purpose. The main purpose of this study was to determine the most desired preparations for persons planning to teach technical agriculture in post-high schools. The subpurpose of this study was to ascertain how closely the deans and/or directors and the teacher educators agreed regarding each of the most desired preparations.

Method. An opinionnaire was designed to obtain the respondents' opinions concerning 57 items of teacher preparation. Opinions were indicated by marking one of the following numbers on a five-point scale for each item of teacher preparation: (1) undesirable, (2) somewhat desirable, (3) desirable, (4) strongly desirable, and (5) very highly desirable. The opinionnaires were mailed to 76 deans and/or directors of those post-high schools offering programs of instruction in agriculture in 13 North Central States and to 81 persons indicated as being the teacher educators of agricultural education in the colleges and universities in the same states. Sixty deans and/or directors and 75 teacher educators returned usable responses. Mean responses were computed for each of the 57 items of teacher preparation for all of the respondents and the two sub-categories of deans and/or directors and teacher educators. Comparisons were made between the deans and/or directors and the teacher educators. The analysis included the use of chi-square and t-test statistical techniques.

Findings. A composite of the desired preparations for persons planning to teach technical agriculture at the post-high school level might be somewhat as follows:

Insofar as an educational background is concerned, it would appear that teacher educators would be pleased to recommend for post-high school instruction in technical agriculture persons with a bachelor's degree in agricultural education and a master's degree in an area of specialization. Furthermore, it would appear that administrators in post-high schools would be willing to employ persons with these qualifications to teach technical agriculture in their institutions.

Along with their formal educational preparation, teacher educators seemingly would like those persons preparing to teach technical agriculture in a post-high school to have had work experience in their area of specialization. A majority would also want these future post-high school teachers to have had previous experience in teaching vocational agriculture.

In addition to the educational background, administrators are inclined to value highly the element of work experience in an area of specialization for persons seeking teaching positions in technical agriculture in the post-high schools. A majority of the administrators would desire that the prospective teacher have had some experience in teaching vocational agriculture.

25. CROMER, Chalmers A., Determining Approval Standards for Postsecondary Vocational Technical Programs in Nebraska. Dissertation, Ph.D., 1970. Library, University of Nebraska, Lincoln.

Purpose. To determine approval standards for post-secondary vocational technical programs in Nebraska.

Method. A preliminary survey was conducted which requested from each state those approval standards for post-secondary vocational technical education presently in use. An analysis of the responses produced a list of 38 standards. These were formulated into a questionnaire and presented to a nationwide sampling of public and private post-secondary vocational technical schools and to all state divisions of vocational education.

Questionnaires were returned by 39 public and 30 private schools and all state divisions of vocational education.

The responses were weighted so that mean scores and variance values could be computed for each standard for each group. The t-test and f-ratio were conducted for each standard to determine those which differed at the .05 level.

All data were tabulated, summarized, and presented to a fourteen-member jury, composed of Nebraska's vocational administrators and educators most closely associated with postsecondary vocational technical education. A vote of approval by at least 50 per cent of the jury members constituted acceptance of a standard.

Findings. The following approval standards for postsecondary vocational technical education in Nebraska were recommended by the jury: (1) Administrative and Operational Policy: (a) the utilization of advisory committees, (b) a policy of student admission which is nondiscriminatory relative to previous educational attainment, (c) a policy of student admission which is nondiscriminatory relative to race, creed, and color, (d) a requirement that students maintain satisfactory educational progress, (e) tuition rates which, together with grants in aid and/or scholarships, make education possible for students who need and may benefit from the instruction, (f) approval from the State Board of Vocational Education for each new instructional program, (g) evaluation of the complete program at the end of each five year interval, (h) maintenance of cumulative student records, (i) documented evidence of deficiencies for all students who are classified as disadvantaged or handicapped, (j) maintenance of communication with Department of Employment Security, (k) minimal professional and occupational qualifications set forth by the state plan for administrators; (2) Educational Services: (a) a counseling and diagnostic testing service center, (b) maintenance of a library of references and media, (c) a placement service to assist students and previous graduates, (d) maintenance of student follow-up records, (e) a student employment service for part-time student jobs, (f) a student housing service, (g) an on-going program of educational research to provide the facts upon which local decisions can be based, (h) a plan for evaluation of effectiveness of instruction; (3) Instructional Staff: (a) an instructional staff which meets the provisions of occupational experience and professional preparation as set forth by the State Plan, (b) provisions for emergency teaching certificates, (c) provisions for in-service education or occupational experience, (d) provision for instructor benefits, such as retirement, tenure, desirable working conditions, etc.; (4) Instructional Program:

(a) documented evidence of educational need and occupational opportunities in each instructional field for which approval is requested, (b) formulation of a plan for a total program of vocational education, including preparatory and/or supplemental courses, (c) a syllabus of each instructional program for which approval is requested, (d) course content which prepares students to meet the training objectives, (e) a long range plan for vocational technical education, (f) established instructional goals for meeting long term and short term objectives, (g) provision for basic general education courses for students who need to remove deficiencies, (h) recognition awarded to students upon successful completion of a program of study; (5) School Facilities: (a) necessary facilities, equipment, and instructional media, etc., (b) plan for procurement, replacement, updating, and maintenance of instructional equipment and educational media, (c) provisions for observing safety precautions on all instructional equipment, (d) use of community resources to enrich the instructional program.

26. CROMER, C. A., SNELL, Jean, and LARSON, Fay G., State-Wide Computerized Model for Determining Occupational Opportunities in Nebraska, 1970 Report. Staff Study, 1970. Nebraska Coordinating Unit for Vocational Education, University of Nebraska, Lincoln.

Purpose. This was the third in a series of annual studies, designed to assess the need for employees in Nebraska. The thrust of this project has been directed toward reducing the gap between the manpower resource in the state and the employer with specific manpower needs.

Method. The problem was pursued by asking employers throughout the state what their estimated manpower needs will be as the result of expansion, retirement, promotion, and turnover. The data supplied by the employers are then classified in occupational clusters which include job titles requiring similar educational preparations and occupational competencies. A three per cent computerized random selection of firms was drawn; this constituted the sample from which data were obtained for this report. Sources which contributed to the master population of firms were as follows: (1) IRS 941 (firms employing one or more persons); (2) IRS 942 (domestic help); (3) IRS 943 (farmers and ranchers employing hired labor); (4) the Employment Security Division of the State Department of Labor (out of state firms which were equated in terms of in-state locations, in addition to the federal, state, local, and tax exempt agencies); and (5) the State Tax Commissioner (the state Business Master File for updating purposes).

Findings. The number of persons presently employed in all of the occupational areas was projected at 642,656, with a total need of 118,621 for the following 12 months and 156,136 for the following 2 years.

The largest segment of those presently employed is found in the Trades and Industrial area with 200,203 presently employed, comprising 31.2 per cent of the total. The next largest employment figure was found in the Agricultural area with 120,386 presently employed, amounting to 18.7 per cent of the total. Office Occupations followed with 104,399 employed or 16.2 per cent of the total. Distributive Occupations reported 92,801 presently employed, 14.4 per cent of the state total. Other areas, following in order of total employed, included Other Occupations, 88,500 employed; Health Occupations, 27,434 employed; and Wage Earning Home Economics with 8,933 employed.

Of the 118,621 employees estimated to be needed during the next 12 months, 41,647 persons or 35.1 per cent of the need were found in the Trades and Industrial area. Next was Distributive Occupations with 28,831 persons needed or 24.3 per cent of the total, followed by Office Occupations with 20,833 persons needed or 17.5 per cent of the total. Other occupational areas, in order of numbers needed, included Agriculture, Other Occupations, Health Occupations, and Wage Earning Home Economics.

The projection of 156,136 persons needed for the following two years found the Trades and Industrial area leading with 55,001 persons needed, comprising 35.2 per cent of the total. Following in order of numbers needed were Distributive Occupations, Office Occupations, Other Occupations, Agricultural Occupations, Health Occupations, and Wage Earning Home Economics.

The findings were also classified by occupational cluster within each of the seven occupational areas.

27. DILLON, Roy D., Are Local Teachers of Agriculture Teaching Relevant Junior High Vocational Courses? Staff Study, 1970. University of Nebraska, Lincoln.

Purpose. To determine how many Nebraska teachers of vocational agriculture were presently teaching junior high vocational courses, and to determine the present course objectives.

Method. Questionnaires were sent to 110 Nebraska secondary schools which conduct vocational agriculture programs. Responses were received for 103, or 93.6 per cent of the school.

Findings. Of the 103 schools which responded, eighteen, or 17.4 per cent, of the agriculture teachers are conducting a junior high school class at the 7th or 8th grade level.

The major objectives of the semester or year courses being offered, listed in the order of the frequency mentioned, were: (1) demonstrate basic woodworking and shop skills; (2) list and describe opportunities in agricultural occupations; (3) demonstrate basic mechanical drawing skills; (4) study livestock science including breed identification; (5) study plant science; (6) demonstrate basic agricultural mechanics skills; (7) study earth science; (8) demonstrate leathercraft skills; and (9) demonstrate tractor safety.

The findings indicate there is little concerted effort by the teacher of agriculture to structure junior high school courses toward occupational exploratory objectives, in that only four schools indicated course content was directed toward agricultural occupations objectives.

28. DILLON, Roy D., New Organizational and Operational Strategies for Vocational-Technical Teacher Education. Staff Study, 1970. University of Nebraska, Lincoln.

Purpose. To outline pertinent guidelines for organizing and operating vocational-technical teacher education programs. The review was taken from the results and one year follow-up of a National Seminar held at the University of Nebraska in June, 1968, for selected Deans of Colleges preparing vocational educators.

Method. A Task Force Technique was used to enable participants, after hearing key consultants, to make recommendations concerning organizational and operational strategies for resolving critical vocational education personnel supply and demand problems.

Findings. Highlights of the Task Force recommendations were: (1) There should be one agency in the university responsible for the total mission of teacher education; (2) state coordinating councils for vocational-technical teacher education are needed; (3) a state master plan for vocational-technical teacher education is imperative; (4) schools and industry must cooperate to provide pre-service occupational experience for vocational-technical teachers; (5) common elements must be identified in order to cluster occupations for teacher preparation; (6) academic teachers must be taught how to prepare students for the world of work; and (7) an experienced vocational educator should be appointed to assist USOE with administration of the Education Professions Development Act.

One year later participants reported local actions planned or implemented: (1) inter-departmental, inter-college, and inter-university committees were formed in ten states to discuss procedures for solving teacher supply and demand problems; (2) new state-wide councils on Teacher Education were organized in two states; (3) studies of certification requirements for vocational-technical teachers were begun in three states; (4) six states revised graduate vocational-technical teacher education programs; (5) eleven states reported that committees were appointed to study new organizational patterns for vocational-technical teacher education; (6) undergraduate "core courses" which cut across vocational areas were established in one university; (7) sixth-year specialist programs were established in two universities; (8) new recruitment activities identified included offering undergraduate and graduate assistantships to encourage occupationally qualified persons to prepare as vocational-technical teachers, employing a full-time recruiter to contact secondary schools, technical schools, and industry for possible students, encouraging students in other technical departments within the university to consider a teaching career, developed color slide presentations with brochure to describe career opportunities in vocational-technical teacher education, established a 15 month internship program for vocational coordinators, organized state recruiting commission to contact schools, and made obtaining a double major easier through more flexible undergraduate course requirements; (9) one state conducted a series of in-state institutes for vocational-technical teacher educators to discuss new organizational strategies; and (10) the role of each State Research Coordinating Unit for Vocational Education was emphasized by seminar participants as important in helping identify and disseminate research relating to vocational education needs.

29. DILLON, Roy D., Using Citizens as Local Advisors in Planning Agricultural Education Programs. Staff Study, 1970. University of Nebraska, Lincoln.

Purpose. The purpose was to determine the extent to which Nebraska teachers of Agriculture are using citizens advisory committees in planning and evaluating local agricultural education programs.

Method. Questionnaires were sent to 110 Nebraska secondary schools which conduct vocational agriculture programs. Responses were received from 103, or 93.6 per cent, of the schools.

Findings. The results of the study show a definite increase in the organization and use of formal advisory committees over the past three years.

Twenty-seven, or 26.2 per cent of the schools indicated they had a formal citizens advisory committee, and an additional 38, or 36.8 per cent of the schools, indicated they use an informal consulting group. Therefore, a total of 65, or 63.0 per cent of the schools responding use local citizens as advisors in planning local vocational education programs in agriculture.

Of the 27 schools which have formal advisory committees, 19, or 70 per cent, have been started by agriculture teachers during the past three years. Nine of the 27 committees meet on a regular basis, and 18 meet on call. Seven of the 9 committees meeting on a regular basis have been started during the past three years. Membership on the 27 formal committees ranges from 3 to 13 persons, with 7 members being the most common.

Of the 38 schools which have informal advisory committees, 11, or 28.9 per cent, have been started by agriculture teachers during the past three years. Nine of the 38 committees meet on a regular basis, and 29 meet on call. Six of the 9 committees meeting on a regular basis have been started during the past three years. The membership on the 38 informal committees ranges from 3 to 15 persons, with 7 members being the most common.

Major tasks being studies by formal committees in the order of importance based on frequency of response of schools were: (1) course of study changes, need for new programs, overall program objectives; (2) adult class program; (3) agri-business or OFAO courses and placement experience programs; (4) agricultural mechanics and shop facilities, curriculum, and activities; (5) facilities needs for agriculture program; (6) agricultural department budget; (7) FFA activities and contests; and (8) evaluation of on-going vocational agriculture classes.

Major tasks being studied by informal committees in the order of importance based on frequency of response of schools were: (1) new or reorganized program needs; (2) individual course planning--i.e., OFAO course, agricultural mechanics course, adult and young farmer classes; and (3) specific problems needing study.

30. DOCKTER, Allen Dale, Attitudes of Farmers in the Gackle School District Toward Adult Farmer Education. Thesis, M.S., 1970. North Dakota State University, Fargo.

Purpose. To determine attitudes of farmers in the Gackle School District toward selected aspects of adult farmer education programs.

Method. The 170 farm operators who lived on farms were selected as the population of this study as of February 1, 1970, in the Gackle School District. The names of the farm operators were obtained through the use of the County Atlases of LaMoure, Logan, and Stutsman Counties. A questionnaire was constructed to secure the information needed to reach the objectives of this study. The information was put on key punched cards and was programmed by the computer center at North Dakota State University.

Findings. The mean score of each attitude question by the total group of respondents indicated a very favorable attitude toward the need for a complete record keeping system. All age groups had high mean scores pertaining to the need for a complete record keeping system and the role of these records in farm management decision making. The 19-29 years and 30-39 years age groups indicated the greater desire to enroll in classes in farm management education. The age group of 30-39 years had the most favorable attitude toward the need for help in interpreting record analyses. Farm operators with more than an eighth grade education had the most favorable attitude toward the total attitude questions and felt the greatest need for help in summarizing and interpreting record analyses.

The Gackle Vocational Agriculture Department and Board of Education should study this survey and give serious consideration in offering a class or classes in farm management education. It is recommended that more studies of this type be carried out by vocational agriculture instructors or boards of education who plan to introduce a farm management class in their school district.

31. EDSALL, Richard Herbert, Vocational Agriculture Programs in Joint Vocational Schools, Participating Local Schools, and Non-Participating Local Schools. Dissertation, Ph.D., 1970. Library, The Ohio State University, Columbus.

Purpose. To investigate whether the advantages attributed to joint vocational schools hold when vocational agriculture programs in joint vocational schools are compared with vocational agriculture programs in participating local high schools and non-participating local high schools in comparable districts not served by joint vocational schools.

Method. From a review of literature, six major hypotheses corresponding to the advantages attributed to the area vocational school concept were formulated to guide the investigation. Data were collected from 30 vocational agriculture teachers, 31 counselors, 448 faculty members, and 546 vocational agriculture students in two joint vocational schools in Ohio, ten participating local schools and 12 non-participating local high schools in comparable districts. Enrollment data and information about dropouts for the period 1965 to 1970 were also collected.

Findings. Hypothesis I: The data did not support the hypothesis that vocational agriculture programs in joint vocational schools increase the number (and percentage) of high school students studying vocational agriculture in joint vocational school districts.

Hypothesis II: The data supported the hypothesis that joint vocational schools offer more specialized vocational agriculture programs than do local high schools.

Hypothesis III. The evidence did not support the hypothesis that vocational agriculture programs in joining vocational school districts have a lower percentage dropout rate. Dropout rates from vocational agriculture programs were higher in participating local schools than in non-participating local schools.

Hypothesis IV: The data supported the hypothesis that students who enroll in vocational agriculture programs in joint vocational schools have distinct and identifiable characteristics which distinguish them. Vocational agriculture students in joint vocational schools have higher current grade achievement in all subjects and fewer anticipate obtaining further education.

Hypothesis V: The data tended to support the hypothesis that a greater quantity and a better quality of vocational guidance are provided students enrolled in vocational agriculture in joint vocational schools than are available to students in local high schools.

Hypothesis VI: The data tended to support the hypothesis that the image of vocational agriculture is rated higher by faculty members and vocational agriculture students in joint vocational school districts than by faculty members and vocational agriculture students in non-participating local schools. Vocational agriculture students in joint vocational school districts rated vocational agriculture higher than did students in non-participating local schools. Faculty members in joint vocational schools were more favorable to vocational agriculture than were faculty members in local high schools.

32. EFIONAYI, Joseph A. B., the Newsletter as a Communication Medium in Teaching Low-Income Homemakers. Dissertation, Ph.D., 1970. Library, The Ohio State University, Columbus.

Purpose. To determine the effectiveness of a newsletter as a medium of information for a program designed to improve the quality of nutrition among low-income families. Specific objectives were to determine the sources from which the low-income families generally receive information about nutrition, to determine the extent to which participants acquired knowledge of nutrition principles as taught through the newsletter, to determine the participants' attitudes toward a newsletter as a medium of information about nutrition, and to determine the relationships between level of income and education and the cognitive learning and attitudes of respondents toward the newsletter.

Method. The study involved a randomly selected group of low-income families participating in the Expanded Nutrition Program in Dayton, Ohio. Information was collected from the records of the Cooperative Extension Service and through a data collecting instrument consisting of background information of respondents, a cognitive learning scale, an attitudinal scale, and scale to determine participants' sources of information.

Findings. The newsletter was found to be an effective medium for teaching homemakers of low-income families about nutrition principles. The participants perceived radio, television, newspapers, and nutrition aides as sources of information about nutrition. The low-income families' cognitive knowledge about nutrition is positively related to their level of education.

33. EICKHOFF, Ralph V., Sr., An Inventory of Occupational Opportunities in the Columbus Service Area. Thesis, M.S., 1970. Library, University of Nebraska, Lincoln.

Purpose. To inventory the number of persons presently employed in the various occupational areas in the Columbus, Nebraska, service area and to identify the projected employment needs due to turnover and expansion for the next year and the following two years in the same occupations.

Method. The inventory was conducted in postal zip code area 686 surrounding Columbus, Nebraska. A 25 per cent random sampling of business firms in the area netted 667 businesses to be inventoried. The state-wide computerized model

for determining occupational opportunities in Nebraska was used as the data collection instrument and data were collected by questionnaire and personal interview from 92 per cent of the businesses.

Findings. The inventory showed 38.1 per cent of the people worked in agriculture; 9.8 per cent in distribution; 1.9 per cent in health; 1.0 per cent in home economics; 7.4 per cent in business occupations; 19.4 per cent in trades and industry; and 22.4 per cent in other occupations. The total number of persons employed in the area was found to be 27,061.

The greatest need for workers was found to be in the trades and industrial occupations area which accounted for 38.8 per cent of the total needs for the next year and 35.5 per cent of the needs for the following two years. Following the "other occupations" category was the business occupations area with needs of 8.5 per cent in 12 months and 8.7 per cent of total needs the following two years. Distribution occupations were found to be next in needs followed by agriculture, health, and home economics.

34. FLORELL, Robert J. and SCHNIEDER, Rollin, A Study of the Frequency and the Type of Tractor Overturns on Nebraska Highways and Farms. Staff Study, 1970. University of Nebraska, Lincoln.

Purpose. To determine factors associated with tractor overturns and to suggest ways of preventing accidents.

Method. Data were compiled from 100 tractor upsets in Nebraska from January 1, 1966, to January 1, 1969.

Findings. Of the 100 accidents reported during this time, 42 resulted in a fatality, of which two were passengers. Of the remaining 58 accidents, 56 resulted in injury to the operator. Two accidents resulted in no injuries. The two uninjured persons were driving tractors equipped with cabs.

The six significant findings were: (1) persons under 20 years of age tended to be traveling at faster speeds (over ten miles per hour) at the time of the accident than those over 20 years of age; (2) lack of experience appeared to be an important factor contributing to suspected causes of accidents; (3) a significant number of fatalities occurred when the overturn was more than 180 degrees; (4) from these findings it could be concluded that fatal tractor accidents are more apt to occur in fields or pastures while more injury accidents occur on public roads; (5) 67 per cent of the tractors reported in the study were tricycle types; and (6) rear type accidents were more apt to be fatal although per cent of the accidents the tractor tipped sideways.

35. FLORELL, Robert and SCHNIEDER, Rollin, The Impact of a Defensive Driving Course on the Participant's Knowledge and Attitude. Staff Study, 1970. University of Nebraska, Lincoln.

Purpose. The problem to be studied was twofold. The first task was to determine the impact of the Defensive Driving Course on the participant's knowledge of defensive driving. The second task was to determine any change in attitude that occurred as a result of attending the course.

Method. To determine effectiveness of a Defensive Driving Course, the University of Nebraska Agricultural Extension Service collected data from a group of persons who attended the course in Lincoln. Forty-three persons attended the course on four consecutive Tuesdays.

Questionnaires were distributed at the beginning of the first meeting of the DDC as a pre-test to determine the knowledge and attitude of enrollees. Enrollees were also asked to state their reasons for enrolling in the course and their personal characteristics (age, education, occupation, residence, and recent accident record). After the Defensive Driving Course was completed, a post-test was given to determine knowledge and attitude at that time.

Chi-Square and Mann-Whitney were selected as tests of significance. Many times frequencies were small, often less than 10. In these cases when using the Chi-Square technique, the Yates correction for continuity was used. Data were tested at the .05 level of confidence.

Findings. The average number correct on the pre-test and post-test was compared. In every case there was an increase in knowledge after enrollees completed the course. There was a 22-31 per cent increase in the average number of correct answers between the pre-test and the post-test. The Mann-Whitney Statistical technique resulted in a $\bar{z}$ equivalent of 3.985. This is a highly significant finding at the 0.001 level of confidence. The average attitude score was also compared in each of the personal characteristics. Although there was a more positive attitude in the post-test results, the increase was not as great as in the knowledge data. The Mann-Whitney formula results in a $\bar{z}$ of 0.008. This is not a significant difference. It would appear that, although we can teach people about the rules of driving, it is more difficult to change their attitude towards driving.

No significant findings resulted on comparisons made to determine differences in age, education, residence, occupations status, and number of years of driving with both knowledge gained or attitude change.

36. FORD, Robert J., Relation of Summer Program to Total Programs of Vocational Agriculture in Iowa. Thesis, M.S., 1970. Library, Iowa State University, Ames.

Purpose. The study was designed to determine: (1) the relation between the effectiveness of summer programs of vocational agriculture and the effectiveness of total programs of vocational agriculture in Iowa; (2) whether the summer vocational agriculture program rating is positively affected by selected criteria; (3) whether the summer vocational agriculture program rating was related to the extent the department was a full-time department; and (4) whether the summer vocational agriculture program rating was related to the dollars of labor income from supervised farming and employment experience programs.

Method. The data were secured from the Annual Vocational Agriculture Reports and the monthly Summer Activity Reports submitted to the Iowa Department of Public Instruction. The clientele were 185 vocational agriculture instructors in secondary schools in Iowa who did not change positions during the summer of 1969.

Findings. Major findings of the study include: (1) As the summer program rating increased, day school and adult farmer enrollments also increased; (2) summer program effectiveness was a very reliable predictor of total program effectiveness; (3) students participating in contests and livestock judging events nearly doubled as summer program ratings increased; (4) as the summer program ratings increased, the number of Iowa Farmer recipients per department increased; (5) the mean dollars labor income per student increased as summer program ratings increased; (6) departments with highly rated programs conducted at least twice as many instructional field trips and tours as did departments with lower rated programs; (7) newspaper articles published, radio and television programs conducted, and speeches given increased as summer program ratings increased; (8) as the summer program ratings decreased, the years of teaching experience and years of tenure decreased.

37. GO, Samuel S., Farm Business Management Training Needs of M.I.T. Graduates Teaching Elementary Agriculture in Cotabato, Philippines. Thesis, Ph.D., 1970. Library, University of Minnesota, St. Paul.

Purpose. This study was designed to provide information needed in the expansion of the pilot farm business management program for adult farmers at the Mindanao Institute of Technology (M.I.T.), Cotabato, Philippines. Its

specific objectives are: (1) to find out whether or not elementary agriculture teachers in Cotabato who are M.I.T. graduates need additional training in the 30 farm business management topics selected for the study, (2) to determine specific farm business management topics where elementary agriculture teachers need the most amount of training, and (3) to determine the relationship between elementary agriculture teachers' competency to teach the topics included in the study and each of the selected independent variables.

Method. A set of questionnaires was developed and used to gather necessary information from 74 elementary agriculture teachers (Group I) and 24 high school vocational agriculture teachers, college instructors, and members of the Farm Management Committee at M.I.T. (Group II). Additional training needs were determined by comparing the self-ratings made by Group I members with the minimum ratings set by Group II members on the farm business management topics. Nonparametric tests were used to analyze the data.

Findings. Data analysis results show that: (1) elementary agriculture teachers in Cotabato who are M.I.T. graduates need overall training in farm business management; (2) specifically, they need additional training in 21 of the 30 topics included in the study; and (3) correlation coefficients between teachers' competency to teach the topics and five variables (age, teaching experience, high school vocational agriculture training, overall grade point average, and grade point average in Agricultural Economics courses taken in college) are significantly different from zero at .05 significance level. The correlation coefficient between teachers' competency to teach the topics and credits taken after college graduation is not significantly different from zero at .05 significance level. Correlation coefficients range from .354 to .571.

38. HANSEN, Herbert E., Competencies in Welding Needed for Agricultural Machinery Maintenance. Thesis, M.S., 1970. Library, Iowa State University, Ames.

Purpose. The study was conducted to determine: (1) what competencies in welding are needed for agricultural machinery maintenance; (2) to what degree these competencies are needed by farmers and agricultural machinery service personnel; and (3) to what degree these competencies are possessed by farmers and agricultural machinery service personnel.

Method. A panel of eleven specialists assisted in developing a list of 50 competencies needed for agricultural machinery maintenance. The panel included two university agricultural engineering staff members, two welding industry representatives, two vocational agricultural instructors, two job-shop welders and three farmers. The list of competencies was included in a questionnaire which was sent to randomly selected job-shop welders and farmers. Usable responses were received from 96 random sample job-shop welders and 185 random sample farmers.

Findings. Twenty-three of the 50 competencies were oxy-acetylene welding competencies and 27 were arc welding.

In arc welding, the 10 most needed competencies for both groups were the understanding of: (1) affect of amperage, arc length, speed of travel and angle of electrode on weld quality; (2) properties of metals as they affect weldability; (3) properties and uses of various electrodes; (4) safe operating procedures for arc welding; and the ability to: (5) make welds in horizontal, vertical, and overhead position; (6) select proper electrodes and amperage setting; (7) prepare and fit pieces to be joined; (8) position, clamp and weld metals to control distortion; (9) weld cast and malleable iron using steel and nickel electrodes; and (10) recognize and make corrections for weld defects.

In oxy-acetylene welding, the 10 most needed competencies for both groups studied were an understanding of: (1) affect of tip size, gas pressure, speed of travel, angle of tip and type of flame on weld quality, (2) safe operating procedures for O-A welding; and the abilities to: (3) adjust proper gas pressures; (4) select light and adjust the correct flame, (5) select and maintain welding and cutting tips; (6) cut, goudge, and pierce metals with cutting torch; (7) select and maintain O-A equipment; (8) select correct filler rod and flux; (9) control heat by torch manipulation; and (10) identify steel and cast iron temperatures by color.

HASHIM, Mohamad Yusof (See p. 109)

39. HEDGES, Lowell E., The Feasibility of Using Videotape Techniques in Pre-Service Teacher Education in Agriculture. Dissertation, Ph.D., 1970. Library, The Ohio State University, Columbus.

Purpose. To determine the feasibility of including videotape techniques in pre-service teacher education in agricultural education at The Ohio State University. Specific objectives were to determine the feasibility of using videotape techniques in comparison with conventional methods

of teacher preparation in regard to equipment needed, personnel required, training of personnel, and operation of equipment; to secure the judgments of cooperating teachers and student teachers who had experienced videotaping at various times during their training as to when and where the videotape techniques could most effectively be used in the preparation of vocational agriculture teachers; and to determine gain in teaching performance by comparing three methods of using videotape techniques in the preparation of student teachers.

Method. The study involved 39 student teachers who did student teaching during the winter and spring quarters of 1969 and the 22 cooperating teachers who had worked with them. The design used in the experimental phase of the study was the Non-Equivalent Control Group Design. The 14 students in Group A experienced videotaped micro-teaching during the methods course plus video review during student teaching; the 13 students in Group B experienced video review during student teaching but did not experience videotaped micro-teaching during the methods course; and the 12 students in Group C did not experience either micro-teaching during the methods course or video review during student teaching. Two taped lessons were produced by each student teacher. The pretest tape was made during the first two weeks of the student teaching period, while the posttest tape was made during the last two weeks. A jury of four viewed the tapes and rated the performance, using a twelve-point scale. The instrument enabled the observer to rate teaching performance in nine different areas.

Findings. The use of videotape recordings did not significantly improve the overall classroom teaching performance of the student teachers in this limited trial, but it did contribute to the interest and motivation of the student teachers. The most appropriate uses of videotape techniques, as judged by student teachers and cooperating teachers, were videotaped micro-teaching in the methods course prior to student teaching and videotape review during student teaching.

The use of videotape techniques was deemed feasible in the teacher preparation program. The videotape recordings were easily incorporated in the methods course and field experiences without extensive revision of course content, field experience activities, or time schedule. The portable video equipment used in this trial was suitable for use in the classrooms involved in field experience and for transporting by passenger auto to and from cooperating schools.

40. HOPP, Paul D., Factors Related to Membership of Youth in 4-H Clubs in Southwest Iowa. Thesis, M.S., 1970. Library, Iowa State University, Ames.

Purpose. The purpose of the study was to identify some of the characteristics of youth that influenced their enrollment in 4-H Club work.

Method. The study was limited to non-4-H members, 4-H members, and 4-H dropouts in the ten counties in the southwest corner of Iowa who were in grades 9 through 12. Over 10,000 youth in grades 9 through 12 were identified and a sample of 390 drawn for inclusion in the study. An instrument to collect the needed data was developed by the investigator and administered to the sample by county extension staff members. Usable responses were received from 296 high school youth.

Findings. The following conclusions were made as a result of the information gathered in this study. (1) Youth who were active in 4-H were also active in other activities and organizations; (2) parents had the greatest influence on 4-H enrollment; (3) parents who were active in community affairs and social activities were more likely to have offspring enrolled in 4-H; (4) fathers of 4-Hers were more likely to be self-employed and their mothers were more likely to be housewives; (5) youth who had brothers and sisters in 4-H were more likely to be enrolled in 4-H; (6) youth tended to enroll in 4-H if they had close friends who were enrolled in 4-H; (7) 4-Hers tended to have higher grades in school than other groups; and (8) active clubs with good leaders tended to have the highest club enrollments.

41. HORNER, J. T., DILLON, R. D., and CROMER, C. A., State-Wide Computerized Model for Determining Occupational Opportunities in Nebraska, 1969 Report. Staff Study, 1969. Nebraska Coordinating Unit for Vocational Education, University of Nebraska, Lincoln.

Purpose. To determine occupational opportunities in Nebraska.

Method. Lists of firms were obtained from the Internal Revenue Service (IRS) for the following tax classes: (1) firms employing one or more persons for whom Social Security and Income Tax were withheld, IRS 941; (2) domestic help, IRS 942; (3) farms and ranches employing hired labor, IRS 943. The Employment Security Division of the State Department of Labor provided: (4) out-of-state firms which were

equated in terms of in-state locations; and (5) all federal agencies within the state. The State Tax Commissioner made available (6) the state Business Master File (BMF).

All lists were transferred to computer tape and merged into one list after duplicates were removed on the basis of federal identification number. Once a master list had been developed, a three per cent computerized random sampling of firms was made to select those firms from which data were drawn. A personal contact was made with each firm by a University of Nebraska interviewer near the beginning of the year 1969.

Data requested from all firms included: (1) the number of persons presently employed by occupational grouping; (2) the employees needed in each occupational group during the next year due to turnover, promotion, expansion, and retirement plus another breakdown of the same data, showing the employer's estimate of the source of the new employees; i.e., whether from within the firm, from outside the firm, or from new employees; and (3) the employer's estimate of employment needs for each occupational grouping for the following two years.

Findings. The number presently employed in all of the occupational areas was projected as 738,188 with a need during the next 12 months of 121,137, and 130,401 the following two years.

The occupational area with the greatest number of persons presently employed is Trades and Industrial Occupations with 301,437 or 40.8 per cent of the total work force. The next largest area is Agriculture Occupations with 133,219 or 18 per cent and Office Occupations with 113,167 or 15.3 per cent.

Of 121,137 employees needed for all areas in the next 12 months, 53,988 persons or 44.5 per cent of the total need for the next 12 months was found in the Trades and Industrial area. Next was Other Occupations, this was followed by 13,485 persons or 11.1 per cent in Agricultural Occupations.

The situation for the following two years showed a total need of 130,401 with 63,829 persons or 49 per cent of the total in the Trades and Industrial area. Following were the occupational areas of Agricultural, Distributive, and Health Occupations at 19.2 per cent of the total need or opportunity with over 13,000 persons needed.

The findings were also classified by occupational cluster within each of the seven occupational areas.

42. HORNER, J. T., PETERSON, R. L., and HARVILL, L. M., An Experimental Evaluation of Approaches to Preparing High School Students for Occupations Other Than Farming and Principles Versus Traditional Approach to Teaching Vocational Agriculture. (USOE Grant) Staff Study, 1969. University of Nebraska, Lincoln.

Purpose. The central problem of this study was to evaluate the effects of selected treatment and classification factors on the preparation of high school students for initial entry into agricultural occupations other than farming. A secondary phase of the study was to compare the effectiveness of structuring agricultural subject matter based on the "principles" approach with the traditional approach.

Method. Twenty-four randomly selected Nebraska schools, excluding the metropolitan high schools of Lincoln and Omaha, comprised the sample for this pilot study. Students enrolled in grades 10-12 constituted the subjects studied. Sixteen of the 24 schools offered vocational agriculture courses prior to this study. The remaining eight schools initiated a program of vocational agriculture instruction when the study began.

For Phase I the 24 schools in the pilot study were randomly arranged into four treatment groups, namely, related instruction, directed work experience, a combination group of related instruction and directed work experience, and a control group. A 2 x 2 x 3 analysis of covariance with repeated measures on the third factor was the experimental design utilized. One factor was that of presence or absence of related instruction. The second factor was labeled directed work experience; and third factor was the year of the project.

Phase I of this investigation involved an analysis of selected instructional procedures for initial entry into Off-Farm Agricultural Occupations. The three test instruments which were used to determine the most effective treatment in educating high school students were the "Test on General Information for Prospective Workers," the "Work Opinion Inventory," and the "Off-Farm Agricultural Occupations Opinion Inventory."

Findings. An analysis of these three measures revealed no statistical differences among the various treatment combinations in regard to the most effective way of educating high school students for off-farm agricultural occupations. The only significant F value revealed that subjects with no exposure to the related instruction factor scored higher on

the "Work Opinion Inventory" than did those with related instruction. On all three measures, the combination group with work experience and related instruction was the lowest of the four groups; however, the differences were not significant. It should be noted that a number of teachers in the study felt that the combination treatment group of related instruction and work experience provided students with the most meaningful learning experiences. A majority of the teachers said they would implement the combination of work experience and related instruction at the close of the study.

A follow-up study was also conducted on the subjects in the four treatment groups. An overall observation of the returned questionnaires revealed that after receiving instruction in any one of the four treatment groups, subjects were most frequently employed in a non off-farm agricultural occupation. Some caution is suggested concerning the follow-up data due to the fact that considerable variation existed in the number of students in each treatment group. Consequently, differences may have been due to the number of subjects in each treatment group. However, the following observations were considered meaningful in an examination of the data. The follow-up study revealed that subjects in the combination (work experience and related instruction) group were initially employed in off-farm agricultural occupations at a higher percentage than any other treatment group. A comparison of the number of subjects going to college showed that the control group had the highest percentage. The highest percentage of subjects entering the military service was found in the control group. The number of students listed as being unemployed or unknown was extremely small.

Phase II of this study was the curriculum phase. For this aspect the 24 schools were divided into three equal groups: new schools with principles curriculum, old schools with principles curriculum, and old schools with traditional curriculum. The new schools group consisted of eight public high schools which had not previously offered courses in vocational agriculture; however, they initiated these courses at the beginning of the present study. The old schools with principles consisted of eight schools which had previously offered vocational agriculture; however, they changed the orientation of their courses from being problem-centered to being principle-centered. The old schools with a traditional curriculum served as the control group and the curriculum remained problem-oriented for the duration of the study. This phase was concerned with comparing two methods of organizing and teaching agricultural subject matter. An experimental principles approach was compared with a traditional enterprise problem-solving approach. The following three agricultural achievement tests were developed to compare the effectiveness of each approach; namely, "Test on the

Principles of Plant and Animal Science," "Test on Mechanics," and "Test on Agricultural Management and Marketing Principles." The analysis indicated that the achievement of subjects in the principles approach was significantly greater than the achievement of subjects taught agricultural subject matter in a traditional manner for the 1965-66 school year and the 1966-67 school year. In the 1967-68 school year, there was no significant difference in the achievement of subjects taught agricultural subject matter based on principles and those taught in a traditional manner.

To assess the overall effectiveness of the curriculum phase of the study, a standardized agricultural achievement test was administered to the subjects who had been in one of the three treatment groups for all three years of the study. The overall analysis served to further reinforce the above findings. The findings revealed that the subjects taught agricultural subject matter based on the principles approach achieved equal to or significantly greater than students taught in a traditional manner.

43. HORNER, James T., ZIKMUND, Dale G., and DILLON, Roy D., et al., A Determination of Occupational Commonalities to Serve as a Base for Course Construction. Staff Study, 1970. University of Nebraska, Lincoln.

Purpose. The primary purpose of this study was to identify common occupational competencies across all vocational fields which could serve as a base for course planning.

Method. An interview-questionnaire procedure was used to obtain information from a random sample of 1,500 persons between the ages of 20-70. The sample was drawn from personal property tax rolls in 14 index counties in Nebraska. Each of the 14 counties was identified as being "most representative" of a group of similar counties, based on the sociological characteristics of the adult population. The total adult population in Nebraska between the ages of 20-70 was identified as the population for the study. The ratio of adults sent questionnaires in each index county was to the total sample as the adult population in the group of counties represented was to the total adult population in the state. Each employed worker in the sample was asked to respond to a checklist of 106 knowledges and skills relative to their requirement in his job.

Findings. Usable questionnaires were obtained from 1,316 employed persons (184 persons were unemployed or retired). These workers represented 398 different job titles

as defined by the Dictionary of Occupational Titles. When the workers were categorized by major occupational groups, 33.6 per cent were in agricultural jobs on- and off-the-farm, 22.4 per cent were identified as being in professional and managerial jobs, 15.6 per cent were in clerical and sales, 13.8 per cent were in skilled jobs, 8.1 per cent were in semi-skilled jobs, and 3.3 per cent were in occupations identified as services and unskilled. Of the 106 knowledges and skills on the checklist, two were checked by more than 50 per cent of the respondents. These were bookkeeping and handling money. The following areas of knowledge or ability were checked by more than 33 per cent of the workers: business management, taxes, credit, marketing, soils, electricity, insurance, accounting, livestock, farm machinery, general agriculture, welding, tractor and other power, agricultural economics, inventorying, salesmanship, first aid, and mechanics (tractor). The results indicate that many workers need similar knowledges and skills. These data lend support for the planning of broad-based vocational courses, where persons with a variety of job titles could be educated together in the basic concepts required by workers employed in their particular jobs.

44. IVERSON, Maynard J., FECK, Vincent J., and BENDER, Ralph E., Student and Program Characteristics of Technical Agriculture in Ohio. Research Report, 1970. The Ohio State University, Columbus.

Purpose. To identify the characteristics of technical agriculture students in Ohio and to determine the association between selected student characteristics, student success in technical programs, and later success in the world of work.

Method. Data were secured from high school and technical school transcripts and by questionnaires from 130 enrollees, 54 second-year students, 55 graduates (one year after graduation), 20 dropouts, and 30 employers involved with seven programs at five technical institutes. Technical agriculture programs included Agri-Business (two institutions).

Findings. In 1968-69, 248 students were enrolled and 57 graduated from Ohio technical agriculture programs. The dropout rate was 23.4 per cent; newer programs had higher rates of discontinuance. More than one-half of the students lived within 50 miles of the technical institute in which they were enrolled and a nearly proportional number commuted daily. The typical enrollee was 18.8 years old, a high

school graduate with a 103 I.Q. who had achieved a 2.36 grade point average and ranked at the 54th percentile in his high school class. Typically, enrollees were from rural, non-farm homes. They preferred out-of-doors work. Nearly three-fourths worked during high school in agricultural jobs. Students enrolled in technical programs primarily because they believed it would increase their earning power, but parents and social prestige were also important influences.

High school grade point average, I.Q., class rank, and English grades were best indicators of an individual's ability to succeed in the technical agriculture program. A majority of students worked nearly 30 hours per week for about 28 weeks during technical school. Concern for desirable employment, opportunity for training and advancement, and high pay influenced students both in completion of the technical program and selection of the first position. Nearly all students desired some type of student organization for social and school adjustment and leadership development.

One year after graduation about one-half the graduates were in the military; of the remainder, nearly two-thirds were employed as agricultural technicians. Most graduates were happy with their jobs and would re-enroll in technical school. Beginning salaries averaged $460 per month; after one year the average was $586. Graduates credited technical school for their success on the job. Employers rated three out of four graduates as above average compared with other new employees. Although employers rated graduates lower in general and technical abilities and understandings than graduates and students rated themselves, graduates were generally considered adequately prepared for the duties they needed to perform on-the-job. There was an apparent need for more adequate information on the level of abilities and understandings required of agricultural technicians.

45. JACOBSON, Bernard Robert, A Comparison of the Responses of Vocational Agriculture and Non-Vocational Agriculture Graduates to Factors Influencing Them to Become Farmers. Thesis, M.S., 1970. Kansas State University, Manhattan.

Purpose. To compare vocational agriculture and non-vocational agriculture graduates in their entry into farming including: (1) job satisfaction, (2) size of farming operation, (3) business procedures, (4) interests while in high school, and organizations and activities of the graduates while in high school.

Method. A questionnaire was presented to farmers who graduated from two adjoining high schools in the years 1945 to 1965. One high school, Frankfort, conducted a vocational agriculture program during this time, while the other high school at Vermillion did not offer vocational agriculture. Data were obtained from eight farmers in the Vermillion area and 20 farmers in Frankfort.

Findings. The study determined that farmers who graduated in vocational agriculture had larger farming operations, kept more advanced records, were more satisfied with farming, operations, and more had intended to farm upon graduation from high school than was the case of the farmers graduating from the high school without vocational agriculture.

46. JOPP, Harlan Vernon, A Study of the Prestige Values of Agricultural Occupations in the St. Cloud Area. Thesis, M.A., 1970. Library, University of Minnesota, Minneapolis.

Purpose. To determine whether differences exist between the prestige value placed on agricultural occupations by students studying agriculture, the parents of the students and the high school counselors. The final purpose was to develop a prestige scale for agricultural occupations as viewed by high school vocational agriculture students, their parents, and high school counselors.

Method. The writer submitted a selected list of 1,073 agricultural occupations to a jury panel to reduce the list to 50 occupations of importance and need in central Minnesota. The 50 selected occupations were typed individually on cards and given to 50 vocational agriculture students selected at random in a 25-mile radius from St. Cloud. The 50 students, their parents and school counselors were asked to rank the 50 agricultural occupations in five different categories using the Q-sort technique. The data for each group of individuals were compared by rank order correlation coefficient and T-test, and finally a prestige scale for agricultural occupations was compiled.

Findings. The three groups surveyed developed definite prestige ranks for agricultural occupations which were similar in structure, indicating that the three segments of the population share a similar view of prestige hierarchy.

The study indicated that agricultural occupations which generally require a college education are in the upper portion of the prestige rank, while those occupations dealing

with sales appear to be on the lower end of the prestige scale. The annual earnings and social prestige did not have an effect on the prestige ranking of that occupation.

The prestige scale for agricultural occupation begins with occupations such as veterinarian, high school agricultural instructor, agricultural banker, and ends with such occupations as livestock buyer, conservation aide, and milk pick-up driver.

47. KIRWIN, Robert P., Ornamental Horticultural Employment Opportunities in Omaha, Nebraska. Thesis, M.S., 1970. Library, University of Nebraska, Lincoln.

Purpose. To (1) identify employment opportunities by clusters of job titles or occupational areas, in Omaha, Nebraska; (2) determine trends of occupational opportunities existing in the field of ornamental horticulture; and (3) identify selected characteristics of employees in ornamental horticulture businesses.

Method. The region of study, or universe, was designated as the metropolitan area of Omaha, Nebraska. For purposes of this study, only those firms and businesses that used an Omaha mailing address were included in the universe.

The occupational family of ornamental horticulture was categorized on the basis of the major function of the firm. The seven categories were: (1) Wholesale Florist; (2) Retail Florist; (3) Landscape Service; (4) Golf Course; (5) Tree Service; (6) Nurseryman; and (7) Retail Vendor of Nursery Stock. Lists of firms and businesses were then compiled. The total number of firms appearing on these lists was 208.

A table of random numbers was used to select a 25 per cent random sample from each of these seven categories. All these firms and businesses were then contacted to obtain data.

Findings. (1) The 208 ornamental horticultural firms and businesses in Omaha employed an estimated 580 full-time men employees and 148 full-time women employees in 1965; (2) the 208 ornamental horticultural firms and businesses in Omaha employed an estimated 196 part-time men employees and 76 part-time women employees in 1965; (3) there was a total number of 448 persons employed in ornamental horticultural occupations in Omaha, Nebraska, between the ages

of 36-45; (4) in only two levels of employment were employers willing to hire employees with less than a high school education. Four employers responded that at the skilled level of employment they were willing to hire nursery propagators without a high school education. Four employers also responded that at the semi-skilled level they were willing to hire nursery and landscape workers without a high school education; and (5) the majority of employers indicated that they would cooperate with the local high school in providing a training program to prepare students for employment in ornamental horticultural occupations.

48. KLIT, John A., Experimental Evaluation of Single-Concept Films as Instructional Aids in Teaching Vocational Agriculture. Dissertation, Ph.D., 1970. Library, Iowa State University, Ames.

Purpose. To evaluate experimentally the effectiveness of single-concept films on instruction in vocational agriculture.

Method. The experiment was conducted in twelve randomly selected Iowa schools offering an approved four-year program of vocational agriculture. Six of the schools were randomly assigned to the single-concept film treatment group and six schools were assigned to the control group. Twenty-one single-concept films were used in teaching the specific subject matter areas (animal health, commercial fertilizer, small gasoline engines, and farm credit) in the treatment schools. The control schools taught the same units without the aid of the films. Data in the form of standardized tests, pretest, and posttest were gathered on the 562 students in the experiment.

Findings. The major findings of this study were: (1) Students in the treatment and control schools had similar scores on the pretest; (2) for all but the animal health unit, statistical analyses revealed no significant difference in gain of knowledge. For the animal health unit, the control schools had a greater magnitude of change; (3) students who performed best in both groups seemed to be those with the highest pretest, intelligence quotient, Differential Aptitude Test (Verbal section) and the agriculture achievement test scores; (4) the amount of variation in posttest scores of students in the treatment schools that was accounted for by dummy variables representing schools was found to be significant for the animal health, commercial fertilizer, and small gasoline engines units. Variation

in student posttest scores did not seem to be influenced by school differences in the farm credit unit; and (5) all analyses comparing the achievement of the vocational agriculture classes taught with the aid of single-concept films to those taught in a traditional manner found no difference in achievement of the two groups as measured by the posttest scores.

LAMBERT, Roger Henry (See p. 98)

49. LAMERS, Gerald R., Factors Related to Occupations of Farm-Reared Male Graduates of the Earlham Community High School. Thesis, M.S., 1970. Library, Iowa State University, Ames.

Purpose. The purpose of this study was to determine factors related to the occupations of farm-reared males who had been graduated from the Earlham Community High School during the time period of 1945 through and including 1965.

Method. All (179) farm-reared males in the Earlham Community High School graduating classes of 1945 to and including 1965 were included in the study. A questionnaire was developed by the investigator that collected occupational, economic, and educational information from each of the graduates. Responses were received from 163 (90.8 per cent) graduates. Additional information related to the occupations of the graduates was provided through the graduates' permanent records on file in the Earlham Community High School.

Findings. Census classification of the graduates' occupations revealed that 17.2 per cent were engaged in farming, 17.8 per cent had entered professional occupations, 12.3 per cent were managers, 14.1 per cent were engaged in service occupations, and 14.1 per cent were laborers. A total of 9.2 per cent were employed as craftsmen, 5.5 per cent were in clerical and sales occupations, 5.5 per cent were in military services, and the remaining 2.5 per cent were operatives. Of those graduates employed in off-farm agricultural occupations, the largest group had entered farm machinery occupations followed by construction; seed, feed, grain, chemicals or fertilizer; and livestock occupations.

Of those graduates engaged in farming, 35.7 per cent were owner-renters, 28.6 per cent were renters, 17.8 per cent were owner-operators, 14.3 per cent were farm partners, and 3.6 per cent were farm laborers. Thirty-five per cent of the graduates had remained within the service area of the Earlham Community, while 28.9 per cent resided within 30 miles of Earlham and 25 per cent were living outside of Iowa.

Enrollment in college and quartile rank in high school graduating class and value of vocational agriculture and agriculture classification of occupations were factors observed to be highly correlated of all graduates studied.

50. LEE, Jasper Sloan, Vocational Education Instruction Similarities in Certain Content Areas in the Secondary Schools. Thesis, Ed.D., 1970. Library, University of Illinois, Urbana.

Purpose. To determine the content and similarity of instruction in teaching selected skills in the various vocational education courses in the secondary schools.

Method. The universe population was composed of all secondary level teachers of agricultural occupations, distributive occupations, home economics occupations, office occupations, and trade and industrial occupations in Mississippi. The sample population was composed of all the teachers of distributive occupations and office occupations and a random sample of 25 per cent of the teachers of agricultural occupations, home economics occupations, and trade and industrial occupations. Two hundred eighty-two teachers were included in the sample. Responses from 278 teachers were used in the study.

The instrument was developed in consultation with an informal committee of teacher educators in vocational education. Ninety-two skills were included in the completed instrument. A Likert scale was used for each skill to indicate the level of proficiency the teachers attempted to teach pupils. The scale was as follows: 1 = no proficiency, do not teach; 2 = low proficiency; 3 = average proficiency; 4 = high proficiency; and 5 = very high proficiency. The statistical procedure involved the construction of a contingency table and the computation of a chi square for each skill.

Findings. Many of the skills were taught by a large number of the teachers, but few skills were taught at high to very high levels of proficiency. None of the skills were taught by teachers of all five vocational disciplines at a similar level of proficiency. Eleven of the skills were taught at similar levels by teachers of two, three, or four of the vocational disciplines. These skills were "selecting a career," "practicing good citizenship," "exercising leadership abilities," "using inventory methods," "using parliamentary procedure," "grooming," "practicing good etiquette," "advertising," "getting a job," "communicating orally," and "practicing good human relations."

51. LEHTO, Dennis Irving, Development and Evaluation of a System of Enterprise Cost Analysis to be Used in an Instructional Farm Management Program. Colloquium, M.A., 1969. University of Minnesota, St. Paul.

Purpose. Vocational Agriculture instructors conducting farm management programs in Minnesota have frequently expressed an interest in a detailed cost and return analysis of crop and livestock enterprises. This interest often arose out of a concern that the present methods of cost allocation perhaps did not give a true and accurate picture of the relative costs and returns of the various crops or livestock enterprises. This study was aimed at the development of a workable cost analysis and comparison of the results with the briefer cost determinations now used in the Minnesota Vocational Agriculture Farm Business Analysis.

Method. The writer used the farm records of 25 enrollees in an organized farm management class at Evansville, Minnesota. These farm operators had previously been instructed to pay special attention to description and allocation of cost entries in their account books. After completion of the 1967 account year, worksheets were devised for allocation of machinery, power, equipment, and building costs. Other costs were allocated as used, giving a fairly complete distribution of costs to definite crops or to livestock enterprises. The labor returns from these calculations were compared statistically with the return data from the presently used, less detailed methods.

Findings. Most of the present methods of determining crop and livestock returns showed a high correlation with the more detailed cost analysis. Livestock returns over feed showed a high correlation with labor returns as calculated in this study. Crop returns calculated by the present methods also compared closely with the more detailed data. The values of the various crops as used in the index of crop selection, however, did not agree closely with the long-range returns as found in this study.

This study indicated that a detailed cost analysis would not necessarily reveal a great deal more usable information on the farm business than the measures presently used in the Minnesota Vocational Agriculture Farm Business Analysis.

52. LESKE, Gary Warren, An Evaluation of Instructional Innovations for Adult Agricultural Education in Farm Business Management. Thesis, Ph.D., 1970. Library, University of Minnesota, Minneapolis.

Purpose. The problem was to develop and to evaluate prototype systems of electronic farm record keeping which would provide cash flow data on a monthly basis, income tax information, and the analysis information available in the Minnestoa Vocational Agriculture Farm Business Analysis.

Method. Twenty-six local cooperator units, a vocational agriculture teacher, and three cooperators, were selected.

Two prototype systems were designed and operated with the assistance of an electronic farm record service. The monthly system utilized expense and income forms. The check system used a check voucher and cash transaction form. Both systems required supplemental forms to retrieve additional essential farm business analysis data.

Instructions were prepared for a computer program which merged the electronic farm record retrieval data with supplemental data reported by cooperators at year end on annual analysis forms.

Findings. A questionnaire was used to gather the opinion of the cooperators and instructors. The two clearest advantages were "I know my income and expense for the month and year to date," and "I am more current in entering information." Personal preferences appeared to be the most important criteria for judgement in many areas. Regimentation, item identification, and error corrections were problem areas.

Reporting problems most frequently encountered were incorrect or unclear enterprise descriptions. Unclear item descriptions were next most frequently identified.

Conclusions drawn included: (1) record keeping knowledge is essential for satisfactory use of a complete electronic farm record service; (2) not all farmers should use an electronic farm record system--cost as well as real value of the additional information must be interpreted individually; (3) farmer's time savings will accrue as a result of shifted calculational procedures; and (4) vocational agriculture instructors will experience a time savings if cooperators can be efficiently moved to electronic systems with their inherent monitoring and calculational efficiency.

Recommendations made included: (1) the developmental efforts should be continued; (2) support procedures for continued operation should be initiated; and (3) the evaluation effort should be continued particularly with respect to time savings, comparative difficulty of using the electronic farm record systems, and the usefulness of specific phases of the monthly information.

53. LEWIS, Wiley Buford, Agricultural Mechanics as Performed on Ohio Farms in Comparison with Offerings in Vocational Agriculture. Dissertation, Ph.D., 1970. Library, The Ohio State University, Columbus.

Purpose. To determine whether agricultural mechanics curriculums in Ohio were appropriate for preparing students enrolled in high school vocational agriculture classes to perform agricultural mechanics activities in production agriculture occupations. Specific objectives were to identify the areas and units of agricultural mechanics taught and the conditions under which they were taught; to identify the agricultural mechanics operations or jobs performed by production agriculture students; to identify the agricultural mechanics operations or jobs performed by farmers; and to determine the relationship between the areas or units of agricultural mechanics taught, the jobs performed by students, and the agricultural mechanics operations performed on farms.

Method. Data were collected through the use of mail questionnaires which were completed by 106 teachers of vocational agriculture, 983 high school students enrolled in vocational agriculture classes, 80 young farmers, and 110 adult farmers. Teachers and students participating in the study were randomly selected; young and adult farmers were chosen through purposive samples. Spearman rank correlation coefficients and Kendall's coefficients of concordance were used for determining the degrees of association among the rankings used in data analysis.

Findings. The data indicated that the instruction provided and activities performed were in each of the five areas of agricultural mechanics--farm power and machinery, farm buildings and conveniences, soil and water management, rural electrification and processing, and agricultural construction and maintenance. Results of the statistical tests showed that teachers of vocational agriculture tended to provide instruction related to the agricultural mechanics items and operations reported on farms by a greater number of students and farmers. Rankings of the agricultural mechanics items or operations by the number of high school students and young and adult farmers who performed such operations generally exhibited a high degree of positive association.

The findings also provided a rather comprehensive view of the instructional program in agricultural mechanics offered in Ohio departments of vocational agriculture, specific mechanical activities performed in relation to these items, and

the individuals responsible for the performance of these activities. It was concluded that the agricultural mechanics instruction being offered high school vocational agriculture students enrolled in production agriculture classes was appropriate for preparing students to perform those mechanical activities found in production agriculture occupations. However, this instruction was also found to involve tasks not generally performed on farms, especially in the area of agricultural construction and maintenance.

54. LONG, Gilbert Andrew, Personnel Responsible for Decisions Influencing Vocational Education in Local Schools. Dissertation, Ph.D., 1970. Library, The Ohio State University, Columbus.

Purpose. To determine where in the administrative hierarchy of the school system decisions are made concerning vocational education; to measure the extent of agreement by vocational teachers, principals, and superintendents concerning who makes the decisions; to investigate the relationship between the extent of teacher-administrator agreement in perceptions of decision responsibility and selected organizational and individual variables; and to determine the extent of agreement between jury projections concerning the location of decision responsibility and the perceptions of the three respondent groups.

Method. A decision analysis instrument composed of 45 decisions was developed with the aid of a jury of experts in school administration. The decision items were designed to be representative of five administrative task areas (Curriculum and Instruction, Pupil Personnel, Staff Personnel, School-Community Relations, and Finance and Business Management) and three responsibility levels (vocational teacher, principal, and superintendent). The superintendents, principals, and 204 vocational teachers in 22 purposely selected secondary schools in Ohio were interviewed.

Findings. Analysis of responses from the three respondent groups indicated the same modal response concerning who makes the decision for 38 of the 45 decisions. The three respondent groups and the jury were in agreement for 35 of these 38 decisions as indicated by similar modal responses concerning who was responsible for making each decision. It was inferred that experts in educational administration can project decision-making functions in secondary schools. Greater agreement in perceptions by superintendents, principals, and vocational teachers was found concerning teachers' responsibilities than for principals' or

superintendents' responsibilities. The three respondent groups had the same modal response for 15 teacher decisions, 11 principal decisions, and 12 superintendent decisions. Seven decisions did not receive similar modal responses from the three respondent groups. It was inferred that teachers' decisional functions are more commonly recognized than are those of the principal or superintendent.

Educational degrees earned by vocational teachers, recency of return to school, years of teaching experience, sex of the teacher, size of school, degree of teacher association activity, and the presence or absence of a local district vocational supervisor were related to the degree of teacher-administrator agreement in perceptions concerning who makes decisions about vocational education in local schools. Vocational teachers in smaller schools were more likely to share similar perceptions of administrative decision responsibility with administrators than were teachers in the larger schools. Vocational teachers who had earned more degrees were more likely to agree with their administrators concerning the location of decision responsibility than were teachers who had fewer degrees.

55. LOVE, G. M., et al., An Assessment of Administrative Problems in Teacher Education in Agriculture. AVA Study, 1969. University of Missouri, Columbia.

Purpose. To determine the problems associated with the reimbursement of teacher education programs in agriculture with federal and state vocational funds.

Method. A survey instrument was developed, field-tested, and revised by the study committee early in 1969. The survey forms were mailed to head teacher educators at 77 institutions offering programs in agricultural education as listed in the 1968 American Association of Teacher Educators in Agriculture (AATEA). Fifty-eight institutions (75 per cent) completed and returned their survey forms.

Findings. To the extent that the sample was representative of the national opinion relative to problems associated with reimbursement with vocational funds of teacher education programs in agriculture in the United States, the following conclusions were drawn: (1) University funds (other than Vocational Education Acts) was the most frequently listed source of budget money for teacher education programs in agriculture; (2) there was a sharp increase (43 per cent) in total budget dollars supplied from state and federal funds between 1962-63 and

1967-68; (3) programs in Agricultural Education which were administratively affiliated with the College of Education or with both the College of Education and the College of Agriculture had higher budgets for faculty salaries and for total budgets than those affiliated only with the College of Agriculture; (4) average percentage reimbursement from state and federal vocational funds for total budget decreased slightly between 1959-60 and 1962-63 and again between 1962-63 and 1967-68; (5) 74 per cent of the respondents had contracts or formal written agreements with the state regarding vocational reimbursements; (6) 51 per cent of the respondents said they had not been invited to help develop the state plan required by P.L. 90-576; (7) 73 per cent of the respondents said that there was no evidence to conclude that financial responsibility for teacher preparation was being shifted to the local institution; (8) 90 per cent of the respondents said there was no evidence to suggest that supervisory responsibility for teacher in service was being shifted to teacher education institutions; (9) 56 per cent of the respondents said that there was no evidence to suggest that teacher education programs at their institutions may be consolidated under a single administrative unit; and (10) 81 per cent of the respondents said there was no evidence to suggest that all teacher education programs of the same type (agricultural education) in the state would be consolidated into a single unit by means of an administrative agreement.

56. LOVINGOOD, Miles Hillard, Perceptions of Agricultural Students at Clark County Technical Institute Concerning Vocational Choice and Technical Education. Thesis, M.S., 1969. Library, The Ohio State University, Columbus.

Purpose. To determine perceptions of agricultural students at Clark County Technical Institute regarding the program of technical education, their vocational preference, and the role of an agricultural technician.

Method. The study included the 86 students enrolled in agriculture at Clark County Technical Institute, Springfield, Ohio, during the 1968-69 school year. A three-part questionnaire was administered to four groups of students: first-year agribusiness students; second-year agri-business students; first-year agricultural equipment students; and second-year agricultural equipment students.

Findings. Students believed that technical education was of a level beyond that of high school but below that of college. There was no great difference of opinion concerning

the program of technical education regardless of whether the student was in attendance for the first or second year. Agribusiness students consistently thought that technical education was more similar to college, particularly with regard to textbooks and starting salaries upon graduation, than did agricultural equipment students.

The students had a primary vocational objective of becoming an agricultural technician rather than a farmer. Agribusiness students were more likely to have a higher regard for the occupation of a person in production agriculture than were agricultural equipment students. First- and second-year students were similar regarding vocational preferences; however, more first-year students wanted to farm part-time than did second-year students. Second-year students were more likely to desire ownership, whether it was a farm or an agriculturally related business, than were first-year students.

The majority of students agreed that as agricultural technicians they will supervise others; influence operation with a substantial effect on cost of doing business, efficiency, service, or customer goodwill; need or exert moderately heavy physical effort; devise and install new systems, methods, or procedures; make decisions; need two years of college-level education; and prepare oral and written reports. Agribusiness students consistently ranked the role of an agricultural technician at a higher level than did agricultural equipment students. Generally, first-year students perceived the role of an agricultural technician to be at a higher level than did second-year students.

57. MACKENZIE, Arthur Douglas, Availability and Frequency of Use of Specific Audio-Visual Equipment by the Vocational Agriculture Instructors in North Dakota. Colloquim Paper, M.S., 1970. North Dakota State University, Fargo.

Purpose. To determine the specific types of audio-visual equipment available for use by the Vocational Agriculture instructors in North Dakota and the frequency of use of this equipment.

Method. The descriptive method of research was used to carry out the study. Two questionnaires were sent out to all of the 69 Vocational Agriculture instructors in North Dakota. The collected data were tabulated by percentages, by the number of instructors having the equipment available, and by how frequently the instructors used the specific audio-visual equipment.

Findings. Overhead projectors were the most commonly available piece of audio-visual equipment, with 87.3 per cent of the instructors having overhead projectors within their departments. Of all the audio-visual equipment reported in the study, the overhead projectors had more daily usage. Sixty (95.2 per cent) of the 63 Vocational Agriculture instructors indicated they had slide projectors available. Sixty-two of the 63 Vocational Agriculture instructors had spirit process duplicators available. The majority of the instructors, 36 (60 per cent), reported they used spirit process duplicators two or three times per week. There was a wide variance in the availability and frequency of use of movie projectors, slide projectors, slide cameras, polaroid cameras, mimeographs, copying machines, dry mount presses, and tape recorders by the instructors of Vocational Agriculture in North Dakota.

58. MARRS, Dan Ralph, A Comparison of Single-Teacher and Multiple-Teacher Vocational Agriculture Departments in the Area of Leadership Development. Thesis, M.S., 1970. Kansas State University, Manhattan.

Purpose. To compare single-teacher departments and multiple-teacher departments of vocational agriculture in the area of student leadership development.

Method. The author used the ten multiple-teacher departments in operation in Kansas during the three year period of the study, the school years of 1966-67 through 1968-69. Ten single-teacher departments were selected randomly from the 140 single-teacher departments in Kansas. A questionnaire was developed which included ten of the major areas of leadership accomplishments of vocational agriculture students.

Findings. The superiority of the multiple-teacher departments over the single-teacher departments of vocational agriculture, in the area of leadership development of students, was apparent. In all the ten areas of leadership development, the multiple-teacher departments excelled the single-teacher departments in the attainment of individual and group leadership awards as follows: 78 per cent of the State and American Farmers, 89 per cent of the foundation awards, 73 per cent of the District and State FFA officers, 73 per cent of the public speaking winners, 67 per cent of the scholarships, 76 per cent of the judging teams awards, 80 per cent of the individual judging awards, 100 per cent of the chapter safety awards, and 85 per cent of the cooperative activities awards. Multiple-teacher departments earned

36 standard and superior awards, 11 state gold awards and two national gold awards, or 64 per cent of the total awards in the National Chapter Awards Program, while single-teacher departments earned 26 standard and superior awards, or 36 per cent of the total awards.

59. MARTINSON, Virgil O., Summaries in Differences Between Wisconsin Youth Who Become Established in or Who Have Discontinued Farming. Thesis, Ph.D., 1970. Library, University of Wisconsin, Madison.

Purpose. The primary purpose of this investigation was to discover the similarities and differences between those who are now farming and those who have terminated their tenure on the farm. The specific objectives were (1) to determine who of the 1957 high school graduates are now farming and those who have farmed but terminated; (2) to determine the similarities and differences between those youth who are presently farming and those who have left the work of the farm; and (3) to determine the progress toward establishment in farming made by youth during their tenure on the farm.

Method. A source of data for this investigation was the 1957 male high school graduates from five representative Wisconsin counties. This is part of a longitudinal study which has followed this group annually since graduation. Of the original 764 males who graduated in these schools in 1957, it was determined that 100 had at one time farmed or were presently farming. Due to such factors as refusal to cooperate further in the longitudinal study, movement out of the state with a subsequent loss of address, and members who have become deceased, and unusable questionnaires, the population of this study totalled 60. Of these, 37 were presently farming and 23 had farmed but were now terminated. The data were collected by mail questionnaire and telephone interview. The data were set up in frequency tables using simple percentages.

Findings. The following similarities were observed: There was no appreciable difference as to the number of brothers as an indication for opportunities for farming on the home farm; in technical knowledge in the area of farm machinery equipment and swine production; in the kinds or extent of participation in 4-H and FFA; in socioeconomic rating of the home farm; in the project contributions to the initial investment at entry into farming; and both groups indicated vo-ag had been helpful or very helpful to them. The greatest differences were found in that those presently

farming had a higher grade point average in high school; had longer enrollment in vo-ag; a greater technical knowledge of agriculture subject matter in soils, crops, dairy cattle and farm management; had a higher level of job responsibility when on the home farm; felt there was greater opportunity for getting established on the home farm; came from larger farms; and used credit extensively. Those who terminated the work on the farm had a greater number who were 4-H members; worked off the farm more days; did not participate in as many educational programs; carried out fewer approved practices; made less substantial progress in increasing scope and production in various farm enterprises; had less capital resources under their control; and were not as involved in farm record keeping as those presently farming. It was concluded youth becoming established in farming were interested in post high school programs for farmers by the department of vo-ag and Extension; were quite certain in their senior year they would have an opportunity to become established in farming on the home farm; scholastic achievement at high school is an indicator of success in establishment in farming; and working at home for board and room or with an indefinite allowance were not satisfactory methods for getting established in farming. It became obvious credit was essential for a successful on-going farm operation and achievement in farming is associated to the extent with which approved farming practices are carried out. The researcher concluded that: (1) young people who are interested in becoming established in farming will continue to be afforded this opportunity but family assistance will be an important factor; (2) parental cooperation and encouragement plays a vital role in helping man become established; (3) because of the increased size of operation necessary there will continue to be a greater reliance on a dependable source of credit; and (4) methods used to become established in farming are somewhat diverse but are based upon means of putting together a large enough investment to make the operation a successful enterprise.

60. MASON, Robert Charles, An Experimental Evaluation and Comparison of Three Television Feedback Techniques Used in Adult Education Classes. Dissertation, Ed.D., 1969. University of Nebraska, Lincoln.

Purpose. The study sought to answer this major question: "How can educational television best be utilized to extend the University campus and its specialists to farmers residing in remote areas?" The specific objectives were: (1) Compare the effectiveness of three television feedback techniques on the basis of adult student achievement and

attitude. The three techniques were: (a) Group I, at-home (indirect immediate feedback) included 41 participants who viewed five 30-minute color telecasts entitled "Pork Spotlight;" (b) Group II (indirect immediate feedback plus displaced, delayed feedback) included a group of 41 farmers viewing the same five presentations at one central location followed immediately by feedback led by the county agent; (c) Group III (indirect immediate feedback plus direct, delayed feedback) included 45 participants involved with group viewing organized by the county agent at one county location followed by telelecture feedback directly with the television instructor. (2) Assess the attitude and effectiveness of the county agent.

The general hypothesis was: "The amount of subject matter gained will increase accordingly as more direct feedback techniques are made available to participants."

Method. This study was designed as a quasi-experiment conducted under natural field conditions with twelve county agents randomly selected and randomly assigned to one of three feedback techniques. Pre- and post-achievement and attitude tests, intelligence tests, and post-opinionnaires were administered. All participants received the same kit of materials--discussion guide for indirect immediate feedback, bulletins, and materials. Analysis of covariance and the "t" test of significance between means were used to analyze the data.

Findings. (1) A significant difference among the treatment groups ($p < .01$) was found in the amount of subject matter gained; (2) three uncorrelated "t" tests ($p < .01$) yielded the following results: (a) no significant difference was found between Groups II and III in amount of subject matter gained; and (b) a significant difference existed between Group I and Group II and Group I and Group III with the greatest difference occurring between Groups I and III; (3) no significant difference in attitude occurred between the three treatment groups; and (4) a favorable attitude toward television workshops was expressed by the agents.

The conclusions were: (1) the more direct feedback techniques which included formally organized groups with "live" discussion leaders were better techniques for gaining subject matter than the less direct at-home technique where participants viewed the program on an individual basis; (2) the feedback technique employed does not affect the participants' attitude toward the television workshops; and (3) the county extension agents accepted the use of television as a successful means of instruction.

MCCARLEY, Walter William (See p. 99)

61. MCCASLIN, Norval L., Experimental Evaluation of Field Trips on Instruction in Vocational Agriculture. Dissertation, Ph.D., 1970. Library, Iowa State University, Ames.

Purpose. The general purpose was to determine the effect of field trips on student achievement in vocational agriculture.

Method. Six Iowa high schools meeting certain criteria were randomly selected and assigned to a treatment (field trip) group and six to a control group. Uniform teaching outlines and reference materials were provided to each of the 12 schools selected to participate in this study. Four field trips were utilized in the teaching of each specific unit (animal health, commercial fertilizers, small gasoline engines, and farm credit) in the treatment schools. These same units were taught without the use of field trips in the control schools. A pretest versus posttest, control versus treatment group experimental design was used in this study. Data collected from the 542 students were obtained by the use of standardized tests, pre- and posttests, and questionnaires.

Findings. This study may be summarized in the following statements: (1) there were no differences between the mean pretest scores in the field trip and control schools for each subject matter area; (2) statistical analysis of all subject matter areas did not indicate any differences in the magnitude of change in knowledge from the pre- to posttest between the field trip and control schools; (3) both groups had a significant gain in knowledge during the time of the experiment; (4) the control schools achieved significantly higher than field trips schools in the farm credit unit when academic ability factors were used as covariates. There were no differences in student achievement for commercial fertilizers, small gasoline engines, and farm credit units when academic ability factors were used as covariates; (5) the differences between the field trip and control schools were not statistically significant when certain interest, aptitude, socio-economic, teacher, and school factors were controlled in each subject matter area; and (6) a highly significant difference, in favor of the field trip schools, was obtained for the commercial fertilizers unit when abstract aptitude, crop acres, department size, and teacher tenure were used as covariates. No significant differences were observed between the field trip and control schools when selected student, home, school, and teacher variables were used as covariates in the three remaining subject matter areas.

62. MCCLANAHAN, Joseph Craig, Senior 4-H Camp Programs and Procedures as Perceived by Older 4-H Club Members. Thesis, M.S., 1970. Library, The Ohio State University, Columbus.

Purpose. To analyze perceptions of older 4-H boys and girls concerning senior 4-H camp programs and procedures. Specific objectives were to determine procedures for developing camp programs that have the most appeal for older 4-H members, to determine motivating factors in 4-H camp attendance, and to determine the type of camp program that would be most appealing as perceived by older 4-H members.

Method. County extension agents in nine Ohio counties supplied the names of 200 older 4-H members who had attended a senior camp in 1969 and the names of all 4-H members who were 14 to 19 years of age. A questionnaire was sent to a 5 per cent random sample of non-campers and to a 50 per cent random sample of the campers. Eighty-three per cent of the respondents returned questionnaires usable in analyzing data.

Findings. Age, place of residence, educational level, and years of 4-H club experience are not related to attendance at senior 4-H camp. Four- or five-day senior camps held during the summer were preferred. Time of week did not appear to be a factor.

Older 4-H members perceive counselors, campers, extension agents, and camp staff, in that order, as important to be involved in the camp planning process. Older 4-H members attend senior camp to meet new friends, have fun, learn to get along with people, have a vacation, develop leadership, and learn new responsibilities. They do not attend camp because of job conflicts, cost, just not wanting to go, and lack of adequate information about camp. Boys are more affected by job conflicts than girls.

4-H members who participate in junior of county 4-H camps tend to participate in senior 4-H camp more than 4-H members who do not participate in junior or county 4-H camps. Older 4-H members with camp counseling experience tend to participate in senior 4-H camp more than members without camp counseling experience. Junior Leadership Club membership, attendance at camps other than 4-H camps, and being a counselor at other than 4-H camps does not appear to be related to participation in senior 4-H camp.

Camp activities such as recreation, vespers, campfire, swimming, and athletic participation were considered to be an important part of a camp program and were preferred by

older 4-H members. There was a high degree of agreement among boy campers, girl campers, boy non-campers, and girl non-campers as to which program activities and topics should be included in the 4-H camp program. If speakers and discussion groups are to be included in the camp program, older 4-H members prefer the following topics: drugs, parent-teenage relations, getting along with others, careers, boy-girl relations, race relations, measuring yourself, college or work, Vietnam, and citizenship.

63. MCCRACKEN, John David, The Utilization of Information by State Supervisory and Teacher Education Personnel in Vocational and Technical Education. Dissertation, Ph.D., 1970. Library, The Ohio State University, Columbus.

Purpose. To investigate factors influencing the utilization of information for problem-solving from teacher educators and state supervisors. The study was designed specifically to identify: (1) differences between teacher educators and state supervisors in their utilization of information; (2) relationships between frequency of literature source selection and perceived accessibility, ease of use, and technical content of, and degree of experience with literature sources; and (3) major sources of information used in solving work-related problems.

Method. Data were gathered by mail questionnaire from 230 teacher educators and 289 supervisors from seven states. Data were treated through a description of the sample, the method of paired comparisons, analysis of data presented in contingency tables, and multiple linear regression.

Findings. Teacher educators, when compared with state supervisors, were more likely to use bibliographies, publications lists, theses and dissertations, indexes, and research reviews; conduct their own search for literature; read original research; search for literature outside the building where they work; utilize literature from educational institutions; and search impersonal sources of information.

State supervisors, when compared to teacher educators, were more likely to use policy papers and curriculum and teaching guides, have others assist in their search for literature, read summaries and interpretations of research, search for literature within the building where they work, utilize commercial sources of literature, and consult with associates within their organization.

Collectively, teacher educators and state supervisors tended to utilize journals and periodicals extensively, conduct their own literature search, read summaries and interpretations of research, utilize materials from educational institutions, use a library within their organization, and consult with personal sources in problem resolution. The groups did not differ significantly as to whether the library generally used was within or outside the organization for which they worked or in their motivation for conducting literature searches.

The factors of accessibility, ease of use, and degree of experience were positively correlated with frequency of literature source selection in solving a work-related problem. Accessibility appeared to be the most potent variable for prediction of literature source utilization. Technical content was negatively correlated with frequency of use. A significant multiple correlation coefficient (R) of .986 and a coefficient of determination (R^2) of .972 between the independent variables and frequency of literature source utilization were obtained.

No significant relationship was found between work-related problems and literature sources used. Literature sources were used in the following order of frequency: (1) guidebooks, manuals, handbooks; (2) bibliographies, indexes, catalogs; (3) journals, newsletters, periodicals; (4) research reviews and interpretations; (5) theses, reports, monographs; and (6) books. Over 75 per cent of the literature seraches resulted in information with which the user was satisfied. The stage in problem-solving in which literature was used most was in developing a background and definition of the problem.

64. MCVEY, Gary C., An Experimental Evaluation of the Effectiveness of an Audio-Tutorial Method in Teaching Vocational Agriculture. Dissertation, Ph.D., 1970. Library, Iowa State University, Ames.

Purpose. The purpose of this study was to determine the effectiveness of an audio-tutorial technique on instruction in vocational agriculture.

Method. From a randomly drawn sample of 12 schools that met certain criteria, six schools were randomly assigned each to a treatment and control group. A 14-day teaching outline was developed. Audio-tutorial machines were used in the study which offered a two-track tape, synchronizing capability, circular storage of 80 slides and a student controlled start-stop control. Four audio-tutorial programs of a

maximum of 20 minutes in length were prepared for each of the four selected subject areas. Student data included, a pretest, posttest, and socio-economic questionnaire.

Findings. There were no significant differences observed between the pretest scores for the audio-tutorial and the control groups. Statistical analyses used to reveal differences between the audio-tutorial and the control schools in magnitude of change in knowledge from the pretest to the posttest yielded highly significant values. Statistical techniques used to adjust for differences in posttest mean scores due to prior differences in the independent variable mean scores resulted in a significant (6.13) value in favor of the audio-tutorial technique in the farm credit unit. No significant adjusted mean scores were found for the animal health, commercial fertilizer and small gasoline engines units.

65. MICHAELS, James A., An Investigation of the Need for Vocational Agriculture Occupations Training in Central Dodge County, Wisconsin. Master's Research Problem, 1970. Library, South Dakota State University, Brookings.

Purpose. To ascertain, for the Central Dodge County, Wisconsin, area, the agricultural off-farm businesses in operation, number of employees, educational level needed, and opportunities available at present and in the next five years.

Method. A mail questionnaire was sent to 23 business establishments. Fifty-seven per cent were returned.

Findings. The anticipated increase in employment positions was 14 for the five year period. When added to normal replacements, a total of nine occupational opportunities per year was noted for workers with competencies in agriculture. Adequate numbers of training stations and interested students were identified to meet the anticipated needs for workers. The need for a program to train these workers was identified. Recommendations included the need for an advisory council, criteria for student selection, guidance information regarding business opportunities, and local evaluation.

66. MONSON, Marvin Ralph, The Self-Concept Change of Male Adults Enrolled in a M.D.T.A. Agri-Business Training Program. Dissertation, Ph.D., 1969. University of Nebraska, Lincoln.

Purpose. This study investigated effects of a Manpower Development Training Act (MDTA) program on the self-concept of 178 male adults, high school graduates and dropouts, enrolled in the Agri-Business School.

Method. The dropouts were divided into those who successfully passed General Educational Development (GED) tests and received a high school diploma (GED Successful), those who tried but failed (GED Unsuccessful), and those who did not try to obtain the diploma. Self-concept changes were examined in relation to age, intelligence, length of training, and educational accomplishment.

Findings. These were the conclusions: (1) graduates and nongraduates did not differ significantly on self-concept scores as they entered the MDTA program; (2) participants did show significant self-concept changes (positively related to educational accomplishment and length of training) during their enrollment in the program; (3) intelligence seemed significantly related to change for all groups but GED Unsuccessful; and (4) age seemed significant in the total group and for both GED groups. Recommendations called for additional research on the variables, flexibile grouping of trainees, and more attention to motivational considerations.

67. MORROW, Charles K., Competencies Needed by Seed Production and Distribution Company Employees. Thesis, M.S., 1970. Library, Iowa State University, Ames.

Purpose. The purpose of the study was to determine the competencies needed by employees in the seed production and distribution industry.

Method. A panel of specialists assisted in developing a list of 49 competencies needed by employees in seed production and distribution. The panel included six representatives from the Iowa Crop Improvement Association membership and six representatives from the Iowa Seed Dealers Association membership. The list of competencies was included in a questionnaire which was sent to selected company managers and selected employees in seed production and distribution in Iowa. Usable responses were received from 80 managers and 120 selected employees.

Findings. Twenty-eight of the 49 competencies selected by the panel of specialists were abilities and 28 were understandings. The five competencies with the highest competence needed by managers and sales personnel were the abilities to: (1) make sound decisions unaided; (2) delegate responsibilities so employee can pursue work expected of him; (3) communicate effectively both orally and in writing; (4) use quality control measures to maintain quality of seed; and (5) work cooperatively under adverse conditions.

The five competencies with the most competence needed by production and processing personnel were the abilities to: (1) safely apply and handle agricultural chemicals; (2) work cooperatively under adverse conditions; and the understanding of: (3) seed viability, purity, and germination; (4) crop maturity and planting dates; and (5) soil sampling, fertilizer recommendations and fertilizer selection.

68. NOVOTNY, Ronald Emanuel, Soil and Water Competencies for the Albany Area High School Agricultural Mechanics Program. Thesis, M.S., 1970. Education Library, University of Minnesota, St. Paul.

Purpose. To determine the subject matter to be taught in the Soil and Water phase of the agricultural mechanics program, and to determine whether it should be taught in a high school or adult education program.

Method. The writer selected 15 Soil and Water competencies and sent them to the 27 families enrolled in the Farm Management program in the Albany area. In completing the questionnaire, each farmer had to decide whether each competency should be taught, to whom it should be taught, and if a farmer possessed some knowledge about a competency, would he perform the skill himself, hire someone to do it or request assistance from another individual or governmental agency. The writer was also determining the level of proficiency possessed by vocational agriculture instructors to teach these competencies.

Findings. Of the 15 Soil and Water competencies selected by the writer for this study, the farmers enrolled in the Albany Area Farm Management program indicated that 10 competencies should be taught and five should not. The study indicated a close correlation between the competencies that should be taught to high school students and those that should be taught to adults. Vocational agriculture instructors in Minnesota possessed the greatest amount of proficiency in the areas that farmers felt were most important

to have knowledge of. The younger farmers indicated a much greater number of competencies that should be taught as compared to older farmers. Based on the findings of this study, it was concluded that Soil and Water competencies should be a part of an agricultural mechanics program in every high school. The writer has incorporated these competencies in his agricultural mechanics program at Albany High School.

69. OAKLIEF, Charles Richard, Junior College Community Service Personnels' Cognition of the Cooperative Extension Service. Dissertation, Ph.D., 1970. Library, The Ohio State University, Columbus.

Purpose. To describe and analyze junior college community service personnels' perception and appraisal of the Cooperative Extension Service and to examine the relationship between various components of perception and selected independent variables.

Method. Two hundred community service personnel were randomly selected from 770 listed in the 1970 Directory of Community Services Leadership in Community and Junior Colleges. The sample was mailed an instrument which consisted of five sections: the status of community service personnel; association of personnel with the Cooperative Extension Service; community service personnels' cognition of the Extension Service; importance and performance of Cooperative Extension objectives, functions, program areas, and service to clientele; and personal opinions regarding the program and work of the Extension Service. There was a 70 per cent response.

Findings. A job title referring to leadership in community services was held by only 27 per cent of the respondents. Another 27 per cent were identified in continuing education. Job titles relating to various other positions were held by 27 per cent.

There were 89 per cent associated with private educational institutions. The tenure of community service directors was low; over 58 per cent reported a tenure of one to two years. The most frequent type of community service program conducted by respondents was the short course. Those associated with private institutions reported less extensive community service programs.

The existing association or involvement with Extension was primarily through Extension mass media efforts.

Community service directors demonstrated very little understanding of the Extension Service. The variables represented Extension organizational, program, and personnel aspects of the program. Respondents readily identified Extension with agricultural production, farming, or the rural population. There were 97 per cent of the respondents replying correctly to statement variables relating Extension to the field of agriculture, home economics, and youth work. Respondents possessed the least understanding about Extension's organization. The newer or more recent Extension programs were perceived incorrectly more often than the traditional areas.

The respondents viewed Extension's major function to be in natural resources education and disseminating research information to farmers and farm families. Extension was perceived as performing well in distribution of literature, teaching efficiency of agricultural production, and disseminating research information to farmers. Service to rural low-income groups was rated as poor.

The background of community service directors is related to their level of understanding of Extension and their perception of importance of Extension clientele.

70. OJAKANGAS, Sulo John, A Study of the Northeastern Minnesota Farm Management Programs with Special Emphasis on the Reasons for the Heavy Dropout Rate. Colloquium Paper, M.A., 1969. University of Minnesota, St. Paul.

Purpose. To determine the successes and failures of the Farm Management approach to Agricultural Education in Northeastern Minnesota from 1956 to 1965.

Method. The study was made by preparing a questionnaire that was either mailed or personally delivered to 50 farmers who had participated in the Farm Management programs during the 10 year period. One half of those receiving the questionnaire were currently on the program and the other 50 per cent had dropped for some reason or other. The 46 statements that each were asked to answer attempted to determine the following attitudes regarding the program and farming in general: (1) attitudes toward farming; (2) attitudes toward the program content; (3) attitudes toward the instructors; and (4) attitudes toward program organization. Of the 50 surveys sent out, a total of 28 farmers submitted a completed questionnaire from 8 counties.

Findings. The study showed that all farmers who returned the questionnaire felt that the Farm Management programs were beneficial and should be continued. The attitudes

of the farmers regarding the future of agriculture in the area was somewhat less enthusiastic. However, the average size of the operations of the farmers surveyed was much larger than the average of all farmers in the area. This would indicate that the farmers participating in the programs should have a greater interest in this type of an educational program than the average farmer.

The reasons given for the discontinuance of the program were as follows: (1) service was not available as the Agriculture department was closed; (2) the farmer retired so he no longer needed the service; (3) some planned to participate again after a brief lay off; and (4) a few had changed their major enterprise and did not feel they needed the service.

71. PATTERSON, Stanley Douglas, An Analysis of Costs and Benefits to Students for Technical Agribusiness Education. Thesis, Ed.D., 1970. University of Illinois, Urbana.

Purpose. The major purposes of the study were (1) to ascertain the private costs for two years of post-secondary technical education in agribusiness, and (2) to analyze certain benefits that agribusiness employees receive from two years of post-secondary technical agribusiness education. A secondary purpose of the study was to obtain data on certain background and employment variables of graduates of post-secondary technical agricultural education programs.

Method. Graduates of Illinois post-secondary technical agribusiness programs who were employed in either agricultural supply occupations or agricultural mechanics occupations were the primary population for the study. Two comparable populations were selected for comparison with the primary population. One comparison population consisted of high school classmates of the members of the primary population, who had received no post-secondary education, and who were employed in agricultural supply occupations or agricultural mechanics occupations. The second comparison group consisted of high school classmates of the members of the primary population, who had received two years or less of non-agricultural post-secondary education, and who were employed in agricultural supply occupations or agricultural mechanics occupations.

A survey instrument was developed and mailed to each employee. The instrument consisted of an agribusiness employee survey and a job satisfaction scale. The agribusiness employee survey was designed to obtain data on

certain personal variables and occupational variables of the agribusiness employees. The job satisfaction scale was adopted for the survey instrument from the "Job Satisfaction Blank" by Robert Hoppock.

Findings. Conclusions were based on returns from 95 per cent of the primary population, 79 per cent of the comparison population with no post-secondary education, and 100 per cent of the comparison population with post-secondary non-agriculture education. The average age of participants in this study was approximately 21 years. The average length of employment was 14 months. Over three-fourths of the technical agriculture graduates reported that their fathers were employed in farming. Graduates of technical agriculture programs were receiving average monthly salaries of $549 in agricultural supply occupations and $433 in agricultural mechanics occupations. Graduates of technical agriculture programs who were employed in agricultural supply occupations were receiving significantly higher salaries than their high school classmates who had received no post-secondary education. No differences were found between the primary population and the comparison populations regarding job satisfaction or fringe benefits. Differences were found between the types of technical agriculture education programs regarding the costs of technical education.

72. PETERSEN, Allan D., Experimental Evaluation of the Effectiveness of Audio-Tutorial Instruction Techniques in Teaching Small Gas Engines. Thesis, M.A., 1970. Library, Iowa State University, Ames.

Purpose. The purpose of the investigation was to answer the following questions: (1) can subject matter in small gasoline engines be effectively developed utilizing the audio-tutorial method of teaching in lecture; (2) can subject matter and procedures in small gasoline engines which utilized the audio-tutorial method of teaching in the laboratory be developed effectively; (3) can selected factors which increase the effectiveness of the audio-tutorial method of instruction be identified; and (4) is there a significant relationship between the attitudes of students using the audio-tutorial method and their pretest-posttest difference.

Method. Twenty-eight students in Agricultural Engineering 428Z were randomly divided into experimental and control groups to evaluate the effectiveness of presenting subject matter and procedures by the audio-tutorial techniques. The experimental design was a variation of the pretest-posttest control group design where an additional test was administered after the treatment.

Findings. The following conclusions were made as a result of the information gathered in the study: (1) a positive relationship existed between semesters of vocational agriculture and student pretest score; (2) approximately 80 per cent of the students had between 3 and 9 small gasoline engines on their residence; (3) a highly significant relationship was found between total laboratory scores and the number of specific repair operations performed; (4) no relationship was observed between laboratory score and mechanical aptitude; (5) no significant differences were observed between group means for small gasoline engines previously disassembled and assembled; (6) all students, regardless of group, gained a highly significant amount of knowledge during the week of the experiment; (7) significant differences existed for posttest scores attributable to the use of audio-tutorial techniques when controlling a selected covariate; and (8) a positive relationship existed between gain in knowledge and attitude toward instruction.

73. PETERSON, Paul, Effectiveness of Six Methods of Teaching Agricultural Careers. Dissertation, Ph.D., 1970. Library, University of Missouri, Columbia.

Purpose. To compare the effectiveness of six methods of instruction as applied to the teaching of a unit on agricultural careers.

Method. The study involved thirty teachers of social studies and agriculture plus a total of 1,053 ninth grade social studies and vocational agriculture students from Kansas City and rural Missouri in a unit of instruction on agricultural careers. Five 50-minute class periods were devoted to instruction and two periods to testing and gathering other data. Teachers were randomly assigned to one of six treatment groups. The treatments were: (1) slides plus teaching plan; (2) Audiscan presentation plus teaching plan; (3) Audiscan, plan and supervisory visit; (4) slides; (5) Audiscan; and (6) control. Teachers in three treatment groups received a teaching plan for a unit of instruction on careers and the other three did not receive the plan.

The dependent variables were the student scores on tests of interest and cognition. A test of cognitive learning was developed, field-tested, and validated. To analyze the data collected, a univariate regression correlation was run, using the IBM 360 computer to identify the concomitant variables to be used for running an analysis of covariance. A Chi-square test was used to determine the association between student preference for a career in agriculture before and after instruction.

Findings. The use of the Audiscan projecto , a teaching plan, and a supervisory visit to the teacher by the subject matter specialist was the best alternative for teaching career information to rural and urban students when measured by a cognitive test. Scores on a test of career instruction in agricultural occupations was positively associated with the interest of students in an agricultural career. The choice of method of instruction and the frequency of use of visual career materials by students in and out of the class were positively associated. There was a positive shift in interest in an agricultural career among students whose fathers were semi-skilled workers.

74. PEYTON, Harold L., The Effect of Demonstration Group Size and Skill Procedure Sheets on the Development of Manipulative Skills. Thesis, M.S., 1970. Library, Iowa State University, Ames.

Purpose. The major purposes of this study were: (1) to determine the difference in achievement in subject matter related to drills based on demonstration group size and the use of a skill procedure sheet; and (2) the differences in drill sharpening ability based on demonstration group size and the use of a skill procedure sheet during the drill sharpening operation.

Method. The 59 students enrolled in two lecture groups of Agricultural Engineering during the Spring quarter of 1968 comprised the population of this investigation. Each lecture group was randomly separated into three laboratory groups with each laboratory group being designated a treatment or control group. In addition, the laboratory groups were designated as a large group, small group, or individual demonstration group for testing purposes. The Owens-Bennett Mechanical Aptitude Test, pretest, informational sheet, and posttest were administered to each student to collect additional data needed in the study.

Findings. The following conclusions were made as a result of the information gathered in this study: (1) nonsignificant relationships were observed between semesters of vocational agriculture and posttest score, gain, Owens-Bennett test score and graded drill bit score; (2) significant relationships were observed between drill equipment at home, previous drill sharpening experience, posttest score, and Owens-Bennett test score; (3) previous drill sharpening experience was positively correlated with graded drill bit score; (4) posttest scores were both positively and negatively correlated for treatment and control groups with graded drill bit scores; (5) amount of drill equipment

at home was highly correlated with graded drill bit scores; (6) previous drill sharpening experience was correlated with the graded drill bit score; and (7) when posttest score and Owens-Bennett score were used as the dependent variable and previous drill sharpening experience as the covariate, significance at the .05 level was observed in favor of the treatment group.

75. PHIPPS, Lloyd J., THOMAS, Hollie B., and WILLIAMS, David L., Development of Human Resources Through a Vocationally Oriented Educational Program for Disadvantaged Families in Depressed Rural Areas. Staff Study, 1970. University of Illinois, Urbana.

Purpose. The purpose of the study was to develop and evaluate a vocationally oriented, family-centered educational program that would bring about the full utilization of the present and potential capabilities of severely disadvantaged youth living in economically depressed rural areas.

Method. The comprehensive research project included: (1) a study of depressed rural areas in Illinois; (2) a study of the characteristics of the rural disadvantaged; (3) development of a family-centered, vocationally oriented educational program based on needs of the rural disadvantaged; and (4) evaluation of the educational program using a pretest-posttest control group design in which the educational program served as the treatment.

Severely disadvantaged families, parents and children 12 years of age and over, in the experimental group participated in 12 group meetings and received personalized instructions in three major areas: (1) determining realistic career choices and plans for the children; (2) family financial management; and (3) improving family income. The educational program was recognized as a part of the adult education program of the agricultural occupations department in the five experimental secondary schools.

Findings. The rural disadvantaged were antisocial and suspicious of the local educator at the beginning of the educational program. Personalized activities were essential to gain their initial cooperation and trust, and to encourage families to take action to improve their situation as the educational activities progressed.

Statistical results of the study indicated that families who participated in the educational program as compared to the control group exhibited significant positive changes in

certain areas related to: (1) parental desires for their children; (2) occupations and organizations of parents; (3) situation and goals of children; (4) situation and goals of the family; (5) the home and its surroundings; and (6) the morale and general adjustment of family members.

76. POITEVIN, Howard L., Factors Related to Occupational Status of Male Graduates of West Union, North High School. Thesis, M.S., 1970. Library, Iowa State University, Ames.

Purpose. The purpose was to determine the factors that influence the occupational status of male graduates of North High School.

Method. A questionnaire was designed and forwarded to the male graduates of North High School during the period 1957-1966. Usable questionnaires were received from 309 graduates. Additional information was secured from the permanent records of the North Fayette County Community district.

Findings. Findings revealed 17.5 per cent of the graduates had entered professional occupations, 12.9 per cent were engaged as farm operators and farm laborers, 11.3 per cent were in the clerical and sales field, 27.9 per cent were completing military service or were classified as students, 30.4 per cent were employed in the occupations of managers, craftsmen, operatives, service, and non-farm labor, and .6 per cent were unemployed.

Almost 34 per cent of the male graduates of North High School had migrated from Iowa. None of the farm operators and those graduates employed as farm laborers, and non-farm laborers had migrated from the state. Almost 80 per cent of the farm operators were still located within the North Fayette County Community School District. The sons of fathers in professional, managerial, and military occupations had migrated from Iowa in larger percentages than had the sons of farm operators, craftsmen, operatives, service workers, and non-farm labor workers.

Thirty-five per cent of the graduates' fathers had an eighth grade education or less. Findings indicate that the graduates' mothers tended to have more education than the graduates' fathers.

Over 18 per cent of the graduates were engaged in off-farm agricultural occupations as compared to 63 per cent who indicated themselves as employed in non-agricultural occupations. Farm reared graduates who entered off-farm agricultural occupations tended to come from small farms.

Findings indicated those graduates with intelligence quotients of 125 or more tended to migrate from Iowa and to enter professional occupations.

Of the graduates with seven or more semesters of vocational agriculture, a large percentage were in the farm operators and farm labor occupations.

77. POLLMANN, James C. and GADDA, H. W., A Study of High School Seniors from Two South Dakota Area Vocational-Technical School Areas Who Are Interested in Non-Farm Agricultural Occupations. Staff Study, 1970. South Dakota State University, Brookings.

Purpose. The main objectives were to: (1) identify senior high school students who are interested in specific off-farm agricultural occupations; (2) alert individuals to the opportunities in off-farm agricultural occupations; and (3) secure answers to questions concerning off-farm agricultural occupations which are needed in adjusting present programs and developing new programs of vocational education.

Method. Data were collected via questionnaire from high school seniors.

Findings. In South Dakota there are four operating area vocational-technical schools. Only one of these schools offers a course in off-farm agricultural occupations. It was found in this study that at least 1,094 high school seniors are interested in these occupations.

The main occupational areas of interest for the boys are occupations in farm machinery sales and service while the girls expressed the greatest desire for occupations in ornamental horticulture.

There were 73.3 per cent of the boys answering the questionnaire that indicated they would enroll in a vocational-technical school whereas 40 per cent of the girls expressed a similar desire.

Managerial, technical, and skilled levels of employment were desired by 79.5 per cent of the boys while 52.2 per cent of the girls desired skilled or clerical levels.

Agricultural occupations information was lacking in that 25.7 per cent of those responding indicated it was not available in their high schools.

With the possibility of 1,094 students expressing a desire to enroll in off-farm instruction in area vocational-

technical schools, it is apparent that other courses in off-farm agriculture occupations will need to be added to the existing program in the state. The other area vocational-technical schools should consider adding new programs in the off-farm agricultural occupations area.

78. POTHOVEN, John P., Experimental Evaluation to Determine Effectiveness of Video-Tape in Teaching Metals. Thesis, M.S., 1969. Library, Iowa State University, Ames.

Purpose. To determine: (1) the difference in classroom achievement between students taught by video-tape as a supplement to the lecture method and students taught by the conventional lecture method; (2) the difference in ability to perform skills in the metals laboratory between students who used video-tape in the lecture as a supplement and students taught by the conventional lecture method; and (3) determine the most effective way video-tape can be used in teaching a beginning college metals course.

Method. The population for this investigation included 74 students enrolled in Agricultural Engineering 254. A pretest-posttest control design was used to compare student achievement between groups being taught by the lecture method supplemented with the video-tape instruction and the lecture method only. Additional information was obtained on each student from a questionnaire and university records and used as covariates.

Findings. The following statements summarize the major findings of the study: (1) enrollment in vocational agriculture was not related to posttest score, laboratory score, and course grade; (2) mechanical aptitude, high school rank, posttest score, and course grade were significantly related to college grade point; (3) no significant differences existed between pretest-posttest differences for both groups compared; and (4) a significant difference at the .01 level was observed between the total laboratory score for both groups in favor of the video-tape group, when mechanical aptitude and MSAT score differences were controlled.

79. QUITON, Vicente Abobo, Socioeconomic Factors Related to the Morale of Adults in an Economically Disadvantaged Rural Area. Thesis, Ed.D., 1970. Library, University of Illinois, Urbana.

Purpose. The first part of the study was intended to determine the socioeconomic profile of rural families in an economically disadvantaged county, and to investigate selected socioeconomic factors that may be related to the family income differences and the morale level of rural adults. The second part of the study was an experiment to determine the effects of a family-centered, vocationally oriented educational program on the morale and the general adjustment of economically disadvantaged rural adults.

Method. The population of Part I of the study consisted of rural families in an economically disadvantaged county in southern Illinois. The sample included 82 rural families who were selected randomly from among the rural families in the county. In Part II, the population consisted of disadvantaged rural families in two southern Illinois counties. Two independent random samples of twelve disadvantaged rural families were selected randomly. One group was designated as the experimental group, and the other as the control group. The experimental group participated in a family-centered, vocationally oriented educational program for one year. The morale and the general adjustment level of both groups were measured before and after the experimental program.

The instruments used in data collection were: (1) the Family Data Record; (2) the Minnesota Survey of Opinion, and (3) the Sims SCI Occupational Rating Scale. The analysis of variance, the Pearson product-moment correlation, and the analysis of covariance were used in the statistical analysis of the data.

Findings. Economic deprivation among the rural families studied was indicated by low family income, low valuation and poor condition of residences, lack of certain household facilities, and the high percentage of families receiving public aid. Rural adults with low incomes had significantly lower morale, poorer general adjustment, lower socioeconomic status, and lower educational attainment than those with higher incomes. There were significant, positive correlations between morale and the following variables: general adjustment, socioeconomic status, and educational attainment.

In the experimental study, although a slight increase in morale and general adjustment was observed for the experimental group, the analysis of covariance found no statistically significant differences in the amount of change in the morale and the general adjustment between the experimental group and the control group.

80. REIDEL, Wallace F., Jr., Competencies Needed by Livestock Sale Barn Employees. Thesis, M.S., 1970. Library, Iowa State University, Ames.

Purpose. To determine the important agricultural competencies needed by males employed in livestock auction sale barns.

Method. A list of 20 competencies needed by employees in the livestock auction business was compiled by utilizing a mailed survey to livestock auction businesses asking managers to list the competencies they felt important to successful employment in the livestock auction business. The list of competencies was included in a questionnaire which was sent to every livestock auction sale barn listed with the Iowa Department of Agriculture, Division of Animal Industry. Usable responses were received from 41 of the Iowa livestock auction sale barns.

Findings. Managers of livestock auction sale barns indicated the eight most needed competencies were: (1) knowledge of current markets; (2) familiarity with market outlets; (3) the understanding of proper care and handling of livestock; (4) the understanding of proper use of scales; (5) an understanding of bookkeeping procedures; (6) the ability to get along with people; (7) the ability to identify quality in livestock; and (8) the ability to maintain financial stability and manage money.

Assistant managers of livestock auction sale barns listed the four most needed competencies as: (1) an understanding of proper use of scales; (2) an understanding of bookkeeping procedures; (3) ability to be or become a community leader; and (4) mechanical ability.

Four competencies rated as most needed by auctioneers of livestock auction barns were: (1) knowledge of current markets; (2) familiarity with market outlets; (3) ability to be or become a community leader; and (4) mechanical ability.

ROBERTSON, John Marvin (See p. 100)

81. RUF, William Adolph, Development of the Agricultural Programs at the Willmar Area Vocational Technical Institute. Thesis, M.A., 1970. Agricultural Library, University of Minnesota, St. Paul.

Purpose. To serve as a guide in outlining the necessary steps involved in planning, developing, promoting, implementing, and evaluating a post-high school agri-business program. Hopefully, many teachers and teacher educators in

agriculture will be able to use this study as a guide in planning programs which have objectives quite similar to the programs described in this paper.

Method. A historical research method approach was used in discussing the following: (1) concept of agri-business; (2) the place of vocational technical schools in the public school system; (3) the indication of the need and type of agri-business programs best suited for the Willmar Area Vocational Technical Institute; (4) development of the curriculum; and (5) facilities and equipment needed for the programs.

A separate bound supplement contained the appendix. Appendix A--contains 27 units on Counseling and Public Relations. Appendix B--contains 30 units on Sample Instructional Material. Appendix C--contains 26 units on Supervised Occupational Experience-Evaluation-and Follow-Up Forms.

Findings. A review of the data yields the following conclusions: (1) the agri-business concept has clearly defined the changes that have and are taking place in agriculture; (2) the place of the vocational technical school in the public school system has now been made possible through federal and state assistance, which is now available to prepare students for occupations which were not authorized by earlier programs; and (3) the development of an agri-business program should be based on, or consider, each of the following areas: (a) national, state, or community surveys or combinations of them; (b) the formation of an advisory committee; (c) a definite set of objectives for the program; (d) adequate physical facilities and equipment; (e) qualified staff members; (f) a strong public relations program; (g) a course of study should be designed to incorporate: advisory committees, community surveys, direct contact with agri-business managers, other education departments concerned, students, graduates, and instructors; (h) the curriculum should allow for flexibility; (i) students should receive proper guidance and counseling; and (j) evaluation of the program should be continuous and should include a follow-up on students.

SCHNEIDER, Robert Moren (See p. 102)

82. STASSEN, Kenneth H., A Study of the Selection, Makeup and Effectiveness of Advisory Committees to the Vocational Agriculture Program. Colloquium, M.A., 1970. Agricultural Education Library, University of Minnesota, St. Paul.

Purpose. The main objectives of this study were to determine the effectiveness of advisory committees in providing advice for policy making in vocational agriculture departments in Minnesota; to obtain data on how effective agricultural advisory committees differ from ineffective committees in such areas as membership, appointment of members, manner in which they function and activities in which they engage. A third purpose was to determine the length of terms held by advisory committee members.

Method. All vocational agriculture departments in the state which had an organized and active advisory committee were surveyed to gether data reported in the study. Fifty-eight schools in the state were included in the sample; not all, however, were included in the results.

A questionnaire was developed to gather data about each advisory committee. The questionnaire consisted of questions relating to the previously mentioned purposes. Questionnaires returned represented all geographic regions of Minnesota.

The data collected were then tabulated and organized into figures and tables relating to each of the main questions.

Findings. The average agricultural advisory committee had eight appointed members. The most frequently reported length of term was three years.

The number of meetings held per year ranged from one to ten with an average of three.

A study of the makeup of the committee disclosed that of the total number of appointed members, 73 per cent were farmers, 21 per cent were in an off-farm agricultural occupations; the balance of 6 per cent were professional people. Seventy-four per cent of the advisory committees included members of the board of education.

The survey indicated that the advisory committee was used predominately in planning young and adult farmer programs. The advisory committee was also very useful in public relations work.

Recommendations were to place greater emphasis on enlarging membership to include not only farmers but persons engaged in agribusiness occupations. The agricultural advisory committee should be used to a greater extent in studying problems which the agriculture department might have. There is a need for further research and studies of agricultural advisory committees, particularly in determining their effectiveness to the total vocational agriculture program.

83. STATLER, Larry L., Manpower Needs in Selected Agricultural Occupations in Iowa Community College Merged Area X. Thesis, M.S., 1970. Library, Iowa State University, Ames.

Purpose. The purposes of this study were to: (1) determine the status of selected agricultural businesses and employees in merged area X; (2) analyze the characteristics of these businesses and employed personnel; (3) analyze the projected manpower needs of merged area X for persons in these businesses; and (4) collect material and data.

Method. The population in the study was 100 agricultural supply businesses and 80 agricultural machinery businesses in Merged Area X that had been in business two years or more. A 16-question survey instrument was developed and submitted to 24 randomly selected advisory committee members to determine its validity. Question survey instruments were received from 73 agricultural supply businesses and 65 agricultural machinery businesses.

Findings. The following conclusions were made as a result of the information gathered in this study: (1) there was a significant need for highly skilled workers in all businesses studied; (2) there was significant expansion planned by all businesses studied; (3) there was a significant salary spiral between unskilled and highly skilled workers in the businesses studied; (4) there was a significant salary advancement potential for highly skilled workers in businesses studied; (5) there was no significant variation in fringe benefits received by workers of various educational attainment levels in businesses studied; and (6) there was a positive attitude possessed by employers in the businesses studied indicating a favorable reception to students graduating from Kirkwood Community College with competencies needed in agricultural supply and machinery businesses.

84. SWOBODA, Donald W., The 4-H TV Action Series: A Study of the Responses of Urban Children to Emergency Preparedness Information via ETV. Thesis, M.S., 1969. Library, University of Nebraska, Lincoln.

Purpose. This study was to evaluate the 4-H TV Action series (ETV series) as a method of presenting emergency preparedness material as 4-H project material to urban elementary students.

Method. Three elementary schools in Lincoln, Nebraska, were selected; and 481 fourth, fifth, and sixth grade students were tested to determine the impact that the variables of socio-economic area of residence, grade, method of preprogram information given by teacher, intelligence, sex, and previous 4-H work had on the dependent variables of "knowledge gained" from watching the ETV series, and "participation" in the series.

Findings. Little meaningful significance as to any gain in knowledge of subject matter by participants over nonparticipants relative to the six variables examined was found. The most valuable information collected was that regarding participation in the series. Participation as to socio-economic areas high, middle, and low, were respectively 18.7, 14.7, and 8.1 per cent. The low differed significantly at the .05 level of confidence from the high area. Fourth graders participated significantly higher than either the fifth or sixth grades at .05 and .02 levels of confidence. Students with the greater amount of teacher information on the programs participated significantly more than the group which received limited teacher information. The variables of intelligence, sex, and previous membership in 4-H clubs produced no significant difference as to participation in the TV Action series.

THOMAS, Hollie B. (See p. 103)
THOMAS, Hollie B. and LEIGHTY, George W. (See p. 104)

85. THOMAS, Paul F., The Relationship of the Philosophy of Education to the Teaching Tenure of Graduates of Agricultural Education at the University of Minnesota. Colloquim Paper, 1969. Library, University of Minnesota, St. Paul.

Purpose. (1) to determine whether a person's philosophy of education relates to the number of years spent teaching; (2) to determine whether any of three philosophies was dominant among teachers; and (3) to determine if there was a noticeable change in philosophy after graduation.

Method. A list of graduates from the University of Minnesota in agricultural education between 1956 and 1965 was obtained. Their scores of the checklist, "Purposes and Processes of Education," were taken from office files. A letter and questionnaire were sent to each graduate along with a copy of the checklist. College scores were compared to scores made on the same checklist at the time of the study. One hundred eighteen, or 80.3 per cent, of the living graduates returned the checklist and questionnaire. The questionnaire provided information on years of teaching experience, years of employment, and present employment status.

Findings. Of the 118 involved in the study, 40 were teaching, 40 had taught but were not now, and 38 had never taught. The results of this study indicated that a person's educational philosophy did not affect his decision to teach after graduation, nor his tenure of teaching. All three occupational groups showed that they were most strongly identified with a particular philosophy of education while in college and at present. All groups rated greatest agreement with the Community School philosophy, and least agreement with that of the Academic. The One Way Analysis of Variance did not reject the null hypothesis of no difference between the three occupational groups.

There was a trend for members of all groups to now agree more with the Academic Philosophy than they did while in college, and agree less with the Community School Philosophy. This trend was strongest among the former teachers. This study showed that scores on the checklist used would not be of great assistance in counseling seniors as to their likelihood of entering the field of teaching agricultural education, or the tenure they might expect if they did enter.

86. THOMPSON, John F., Student Characteristics--The Second Year. Staff Study, 1970. University of Wisconsin, Madison.

Purpose. To start and evaluate pilot programs in agriculture. Fourteen schools are now involved. The programs are evaluated using a formative framework which aids the process of developing or improving a program.

Method. A questionnaire was submitted to all junior-seniors in the pilot program schools in the fall of 1969. The data are reported by percentage.

Findings. (1) Twelve pilot programs (excluding Sauk City and Plymouth) enrolled 269 11th and 12th grade students. Two schools enrolled 41 per cent of the students; (2) average enrollment is 23.4 students per program. Those programs primarily for seniors enrolled an average of 13.3 students; (3) the 8 original schools did not experience a significant change (increase or decrease) in enrollment as they entered their second year; (4) 2 in 3 students are seniors; (5) non-farm students equal 69 per cent of the 269 students. State average in the regular vocational agricultural program is approximately 23 per cent non-farm students; (6) the majority of the students have had prior experience in vocational agriculture. Forty-four per cent of the non-farm students had no previous vocational agriculture. One student in five had followed the "vo-ag sequence" from grade 9; (7) the second-

year students are less experienced occupationally than were the first-year students and are far less experienced in the occupation of agriculture; (8) a very diverse group of students are enrolled in the pilot programs; farm to non-farm, extensive to no occupational experience; (9) the students were active with farm students somewhat more active than their non-farm counterparts; (10) students enrolled in the course primarily for exploratory reasons. The ratio of exploratory to definite is 6:4; (11) one in two students with occupational experience enrolled for definite career purposes while one in three who had no experience enrolled for definite career purposes. Farm students were more likely to report definite career objectives for enrolling than were non-farm students; (12) approximately 50 per cent of the pilot programs' enrollees indicated a career preference that was classified as agricultural. Farm students indicated a preference for careers in production agriculture or non-agricultural careers. The non-farm student indicated a preference for a career in agricultural resources or a non-agriculture career. The more years of vocational agriculture one had, the more likely he would prefer a career in agriculture; (13) the students' vocational maturity score was 3.33 on an 8 point scale. This was higher than that of the first year and was related to residence, academic grades, and grade in school; (14) one and two years after the pilot programs were introduced, there was a general increase in the quality of 9th grade students who enrolled in agriculture. This was revealed through a comparison of enrollees by 8th grade GPA scores and IQ scores on record for each student; and (15) nearly all of the pilot programs showed vocational agriculture enrollments as strong as or stronger than the growth in the male population of the school. The pilot programs experience an initial increase in enrollment when designed as a capstone course for junior-seniors. No increase in enrollment at the junior-senior level seems to occur beyond this first year's increase. A careful analysis of the enrollment figures suggests that some of the pilot program enrollment comes with a slight decrease in the regular program. That is, it is evident that some of the students in the pilot programs shifted from the regular program to the pilot program.

87. THOMPSON, John F., BJORKMAN, Sidney R., and EVERSON, Norman O., Evaluation of Educational Television in University Extension Youth Programming. Staff Study, 1970. University of Wisconsin, Madison.

Purpose. This study is an evaluation of television effectiveness when used in University Extension Youth Programs. The questions researched were: (1) Do you learn the intended content by viewing the television program? (2) What is the pattern of participation in the series? (3) Does participation of youth in related classroom activities affect learning? and (4) Does maturity of members affect learning?

Method. An experimental group of 2,473 4th to 6th graders and a control group of 159 in another area were pre- and posttested. The programs were shown on commercial television stations during non-school hours on ten consecutive weeks.

Findings. (1) Television can be used effectively by University Extension to teach early age youth during their "non-school" time; (2) upper elementary age youth will watch and learn from televised educational programs; (3) the 4-H TV Action series appeals to all three grade levels; however, youth in grade four tend to respond more favorably to the program than do those of grades five and six. The older age youth, however, do learn more; (4) classroom activities tend to increase learning; (5) teachers respond favorably to educational programs broadcast by commercial television stations; (6) the majority of the students found this televised program of interest; (7) a series of televised programs dealing with related subject matter will be received by teachers; (8) student interest is likely to decline slightly during a ten week televised program; (9) class discussion will likely be the dominant follow-up activity used by the teachers; (10) if similar televised programs were offered, teachers would utilize them; and (11) University Extension personnel find the televised programs a new and excellent way to program for youth clientele groups.

THUEMMEL, William Leslie (See p. 105)

88. UTZINGER, James Duane, Educational Opportunities in Horticulture for Ohio Youth. Dissertation, Ph.D., 1969. Library, The Ohio State University, Columbus.

Purpose. To assess the extent to which Ohio's young citizens were aware of and had educational opportunities in horticulture. Specific objectives were to identify and describe the Ohio youth educational programs in horticulture during the period 1960-1967, secure the opinions of agricultural and non-agricultural educators and horticultural industry leaders concerning desirable attributes of youth educational programs in horticulture, and make recommendations for future Ohio youth programs in horticulture.

Method. In Phase I, information descriptive of the Ohio youth educational programs in horticulture during the period 1960-1967 was collected from census data, statistical reports, and correspondence and interviews with officials of organizations providing coursework or project experience in horticulture. In Phase II, 156 selected Ohio educators and horticultural industry leaders provided information relative to youth educational programs in horticulture. The respondents were 66 horticultural industry leaders, 55 agricultural educators, and 35 non-agricultural educators who provided information concerning the goals and educational values of youth programs in horticulture and the factors which could limit the implementation of such programs. The survey information was analyzed by descriptive statistics.

Findings. Educational opportunities in horticulture were available to Ohio youth through eight programs during the period 1960-1967. The programs described in the study included the Cleveland School Gardens Program, the Vocational Horticulture Program conducted in Ohio public schools, the 4-H Club Program, the Junior Garden Club Program, the Boy Scouts of America Program, the National Junior Horticultural Association Program, the Youth Gardens Program at The Ohio State Fair, and the Young America Gardens Program. During 1967, slightly over 27,000 youth, or approximately 1 per cent of the Ohio youth population between 8 and 21 years of age took advantage of organized educational opportunities in horticulture. Public school horticulture courses and activities, project work in horticulture offered by youth organizations, and inspiration provided by horticulturally oriented persons are important methods for acquainting and interesting youth in horticulture.

Over two-thirds of the respondents were of the opinion that an insufficient number of opportunities existed to meet the needs of Ohio youth who could profit from horticultural instruction. Respondents considered the general lack of understanding of the nature and significance of horticulture and the lack of qualified teachers as important factors in explaining the lack of avocational horticulture programs in most Ohio public schools. There was considerable diversity of opinion as to those who should initiate proposals for horticultural education programs in Ohio public schools.

Post high school courses in horticulture, consultations with horticulturally trained persons, and coursework obtained in horticultural subjects in public schools can be important methods for providing citizens with horticultural information needed for avocational pursuits. According to the respondents, a desirable youth educational program in horticulture

for Ohio youth would include the following: introductory, exploratory courses in the primary, intermediate, and junior high grades; voluntary vocational and avocational courses in horticulture in the high school; and supplemental horticultural project work in youth organizations as desired.

89. VAN EATON, Earl N., The Effects of Financial Rewards on Student Performance, Attrition, Attitude, and Work-Study-Extracurricular-Leisure Activities. Dissertation, Ph.D., 1970. Library, University of Missouri, Columbia.

Purpose. The study assessed the effects of differing amounts of financial reward among three levels of aptitude on (1) student scholastic performance, (2) attitude toward learning, (3) rate of attrition, and (4) the amount of time devoted to work-study-extracurricular-leisure activities.

Method. A stratified random sampling technique was used to select the subjects. The population consisted of the entire freshmen class in the College of Agriculture, University of Missouri, Columbia. Sixteen students from each of the three aptitude levels were randomly assigned to each financial reward treatment group. A total of 144 students were selected for the study. In one experimental group students were promised full credit toward their fees for the next semester for the top grade point average (4.0). In another experimental group they were offered one-half credit toward fees for the next semester. The third group was used as a control. Student received no financial credit for a grade of 2.0 or below. They revised proportionate credit for grades between 2.0 and 4.0.

A "Posttest only-Control Group" was used to test the variables included in this study. Differences in grade point averages for the winter semester, which was the treatment period, were compared by analysis of covariance. Fall semester grade point averages were used as covariates. Chi-square was used to test associations between selected work-study, extra-curricular, and leisure variables.

Findings. Financial reward did not have a significant effect on student scholastic performance or student attitude toward learning. As expected, the level of aptitude had a significant effect on students' scholastic performance and on attitude toward learning. The rate of student attrition was not associated with the level of financial reward or the level of student aptitude. The varying amounts of financial

reward did not significantly influence the hours of time students spent per week at work, study, extracurricular activities, or leisure activities. Student scholastic performance was not associated with the father being employed in farm or non-farm occupations, by the mother being employed or not employed, by the importance placed on a college education by parents, by the level of income of the parents, or by the location of the student's home.

VERNON, Edwin Wills (See p. 107)
WAMHOFF, Carrol H. (See p. 108)

90. WESTRA, Jack Duane, An Appraisal of North Dakota 4-H Club Leader Training Programs in Selected Counties. Colloquium Paper, M.S., 1970. North Dakota State University, Fargo.

Purpose. To determine (1) the relative importance 4-H leaders placed on 25 selective 4-H leadership tasks (jobs, roles, and/or functions) and (2) the additional training they believe they need to perform these tasks.

Method. A list of 25 "tasks" relating to club organization and supervision, teaching jobs, and member development was submitted to 75 randomly selected North Dakota 4-H club leaders. Each responded to the questions (1) "How important is the performing of this leadership task to the 4-H program?" and (2) "How much additional training do you feel you would need to perform the task?" by checking one of four possible equal interval responses. Question 1 alternatives were: Extremely Important = 4; Very Important = 3; Fairly Important = 2; and Unimportant = 1. Question 2 alternatives were: A Great Deal = 4; Quite a Bit = 3; Some = 2; and None = 1. Responses for each task were tabulated in frequencies, per cent of frequencies and mean scores for each of three tenure groups and for all leaders as a group. The three tenure groups were first year leaders, one to five year leaders, and leaders with six or more years of 4-H leader experience. Two sets of analysis of variance tests were conducted, one between tenure groups on all tasks considered as a unit and one between tenure groups for each question asked of each task.

Findings. Significant difference occurred between tenure groups relative to some tasks when the tasks were considered singly. No significant difference occurred when the 25 tasks were considered as a unit. Relative to question 1, when the tasks were arranged in a rank order of importance scale, using the mean score for all leaders as the determinant, seven club organization and supervision tasks and seven member development tasks were intermingled

and clustered at both ends of the scale. Eleven teaching tasks were generally clustered in the upper middle of the scale. The leaders considered 23 of the 25 tasks to be "very important" and two tasks to be "fairly important."

Relative to question 2, when the tasks were ranked, in the same manner, eight of the 11 teaching tasks were in the top nine places, and the seven club organization and supervision tasks and the seven member development tasks were intermingled throughout the rest of the scale. The leaders felt they needed "some" additional training to perform 15 of the 25 tasks and "quite a bit" of additional training to perform nine tasks.

91. WOODIN, Ralph J., Supply and Demand for Teachers of Vocational Agriculture in the United States for the 1968-69 School Year. Staff Study, 1969. The Ohio State University, Columbus.

Purpose. To determine the number of teaching positions in vocational agriculture in high schools in the United States and the number of graduates in agricultural education programs qualified to fill such positions. This was the fifth similar study of supply and demand of teachers.

Method. Each state supervisor of vocational agriculture was sent a questionnaire regarding teaching positions in his state on August 1, 1969. Chairmen of all teacher education departments preparing teachers of vocational agriculture were asked to indicate the number of graduates and the positions which they had assumed by August 1, 1969. Data were assembled showing the number of teaching positions, the extent of the shortage of teachers, the types of teaching positions and the number of positions by states. The occupations of the 1969 graduates in agricultural education were shown as well as the supply of these from each state.

Findings. A record number of persons were qualified for teaching vocational agriculture in 1969. This group of 1,566 persons was the largest number qualified in any of the past five years. The total number of positions in teaching vocational agriculture was reported as 10,560, not including 597 teachers of agricultural technicians. During the year, 1,181 new and replacement positions were filled, and 121 teachers were still needed but unavailable as of August 1, 1969.

Only 57 per cent of those qualified entered teaching. Other occupations which they entered included teaching in other areas, the armed forces, farm sales and service, and farming. Only 278 (2.6 per cent) of the teachers were reported to be holding temporary or emergency certificates.

Of the 10,560 teachers reporting, about 70 per cent were in single teacher departments, 96 per cent were in general or comprehensive high schools, and 70 per cent reported teaching adults and young farmers as well as high school students. About one-half of all teachers were teaching full-time production agriculture, while the remaining half taught one or more classes for off-farm agricultural occupations. Only 626 teachers were reported as spending full time in teaching in the new specialized programs.

92. WRIGHT, Elmer, Jr., Levels of Interest in Ornamental Horticulture of Different Ethnic Groups. Thesis, Ed.D., 1970. Library, University of Illinois, Urbana.

Purpose. (1) To determine whether or not there is a difference in interest in ornamental horticulture within two ethnic groups, by socio-economic levels; (2) to determine how the interest levels in ornamental horticulture differ among the ethnic groups; (3) to determine whether or not there should be a special effort to inform black people about ornamental horticulture; and (4) to determine whether or not the interest pattern of black people toward ornamental horticulture can be altered, if they are given equality in responsibilities.

Method. The population for Part I of the study consisted of high school pupils grade nine through twelve in the St. Anne High School, St. Anne, Illinois. The population was confined to male pupils.

There were six independent groups with ten respondents in each group, determined by the three social classes that were used in the study; lower, lower middle, and middle. There were three social classes of whites and three social classes of blacks.

The Sims (SCI) Occupational Rating Scale was used to place the pupils into the six independent groups.

There were ten white respondents in the lower social class; ten black respondents in the lower social class; ten whites in the lower middle class; ten blacks in the lower middle class; ten whites in the middle class and ten blacks in the middle class.

The population for Part II of the study consisted of nine black workers and nine white workers who were employed in an ornamental horticulture occupation with the Chicago Park District. The instruments completed were: (1) the Sims (SCI) Occupational Rating Scale; (2) Pupil Data Record Form; (3) the Employee Evaluation Questionnaire; (4) Walker's Vocational Agriculture Interest Inventory; and (5) Hamilton's Agricultural Occupations Interest Scale.

Findings. Of the six hypothesis formulated for the study, three yielded significantly different results at the .05 level.

There were significant differences in interest as measured by Walker's Vocational Agriculture Interest Inventory between black pupils and white pupils in the lower, lower middle, and middle socio-economic classes.

There was no significant difference in interest as measured by Hamilton's Ornamental Horticulture Scale between black pupils and white pupils in the lower, lower middle, and middle socio-economic classes.

There was a significant difference in mean scores as measured by the Walker Vocational Agriculture Interest Inventory among the black pupils in the lower, lower middle, and middle socio-economic classes.

93. BROWN, Norman Allen, Characteristics and Influence Patterns of Students Who Enroll in the College of Agriculture and Natural Resources after First Enrolling in Another College. Dissertation, Ph.D., 1970. Library, Michigan State University, East Lansing.

Purpose. To ascertain characteristics of transfer students and improve career and curricular information programs in the College of Agriculture and Natural Resources.

Method. The respondents were 108 transfer students from other than Michigan State University and 227 change-of-major students.

A questionnaire was used to gather information in the following categories: (1) type of major; (2) post-high school institutions attended; (3) residence; (4) size of high school graduating class; (5) academic achievement; (6) time major choice made; (7) vocational agriculture and conservation classes in high school; (8) source from which student first heard of major; (9) influence of individuals, career and curricular exploration activities, and other factors on choice of major; and (10) student suggestions for assisting other students in choosing curricula in the College of Agriculture and Natural Resources.

Analyses included the use of chi-square and comparisons of percentages.

Findings. Change-of-major students and transfer students were found to differ significantly. Transfer students most often chose fisheries and wildlife as a major and the packaging major was rarely chosen. Over half of these students had attended a community college, and over 40 per cent had attended four-year institutions.

Natural resources transfer students: came most often from non-farm homes; varied greatly as to time of major choice; reported that they first learned of their major from the University Catalog, friends and employees in their area of interest; most often reported that parents, acquaintances, counselors, and College of Agriculture and Natural Resources faculty were influences on their choice of major; and most often reported that their "love for the out-of-doors," magazine and newspaper articles, career or curricular brochures and television programs were influences on their choices of major.

Agriculture transfer students: came most often from rural areas; tended to choose their majors after high school graduation; in about half of the cases had taken vocational

agriculture; most often reported first hearing of their major from friends and College of Agriculture and Natural Resources faculty; most often indicated that individuals who influenced their choice of major were parents, College of Agriculture and Natural Resources faculty, college acquaintances, and vocational agriculture teachers; and most often reported that career or curricular brochures, discussions with employees, and magazine articles were influences on their choice of major.

Change-of-major students most often chose packaging as a major and most often changed from the University No-Preference category and the College of Engineering.

Natural Resources change-of-major students: most often chose their major during the first and second year of college; reported learning of their major from acquaintances and College of Agriculture and Natural Resources faculty; most often reported parents, College of Agriculture and Natural Resources faculty, and college acquaintances were influences on choice of major; and most often reported discussions with employees and magazine articles as favorable influences.

Agriculture change-of-major students: came from smaller high schools and rural areas; tended to make their major choice in the second year of college; most often reported that they first heard of their major from College of Agriculture and Natural Resources faculty, the University Catalog, acquaintances and advisors in previous majors; most often indicated that individuals who influenced their major choice were College of Agriculture and Natural Resources faculty, parents, college acquaintances, and vocational agriculture teachers; and most often perceived discussions with employees, career brochures, and magazine and newspaper articles as having influenced their choice of major.

Packaging change-of-major students; most often came from urban homes; chose their major late, with nearly half deciding in the third year of college or later; reported first learning of their major from acquaintances and also perceived acquaintances as having an influence on their choice of major; most often indicated that the career exploration activities which influenced them were career brochures, discussions with employees, and magazine and newspaper articles; and most often reported that high salaries influenced their curricular choice.

94. LAMBERT, Roger Henry, Teachers' Perceptions and Principals' Expectations for the Teacher's Role in Individualized Instruction. Dissertation, Ph.D., 1970. Library, Michigan State University, East Lansing.

Purpose. The objective of the study was to identify the priority vocational agriculture teachers and their principals associated with selected activities related to the teacher's role in individualized instruction and to compare these priorities for significant differences among the groups studied.

Method. The method involved identifying important individualized instruction activities through a review of literature on the subject and organizing these activities into a survey instrument for use in the study. The selected activities were validated by a jury of experts who were familiar with individualized instruction. The population included all secondary vocational agriculture teachers in Michigan and their principals. A mail survey was taken with a response return of 83 per cent. The analysis of the data included the determination of means for activities, the rank ordering of activities and role areas on the basis of means and the use of the one-way analysis of variance statistical test for significance to determine if various groups of teachers and principals were in agreement or disagreement over the importance of selected individualized instruction activities.

Findings. The teachers' and principals' ratings of the 61 individualized instruction activities ranged from a high of 2.72 to a low of 0.99 on a 0-1-2-3 rating scale. Twelve activities were identified as being of high importance and twelve were classified as being of low importance in individualized instruction by teachers and by principals. One role area, communicator of information to significant others, was rated as being highly important by teachers and principals. Five role areas were classified as being of medium importance by teachers and principals. They were: supervisor of independent study and experiences; provider of small group instruction and experiences; arranger of instructional facilities; planner of courses, units and lessons; and analyzer of student progress. Three role areas were considered to be of low importance by teachers and principals. They were: analyzer of individual differences; provider of instructional materials and media; and provider of large group instruction and experiences.

Teachers and principals disagreed on the importance of the 61 individualized instruction activities when all were considered together and they also differed on ten activities when each was considered separately.

Teacher groups based on years of experience and class sizes disagreed on the importance of the 61 individualized instruction activities when all were considered at one time and the various groups also disagreed on the relative importance on a number of activities when they were considered separately. Teacher groups selected on the basis of high school enrollments, student loads, and levels of academic preparation were in agreement concerning the importance assigned to the 61 individualized instruction activities.

The principals, when grouped on the basis of high school enrollments, levels of academic education, and years of experience, were in agreement concerning the importance they expected teachers to assign to the 61 individualized instruction activities.

95. MCCARLEY, Walter William, An Experimental Study to Evaluate the Effectiveness of an Individualized Instructional Method and the Lecture-Discussion Method for Teaching Vocational Agriculture Classes. Dissertation, Ph.D., 1969. Library, Michigan State University, East Lansing.

Purpose. To evaluate the effectiveness of an individualized instruction-laboratory method as compared to the lecture-discussion-laboratory method of instruction as measured by: (1) student achievement, (2) student interest in agriculture, and (3) student academic rank; and (4) to construct a student personality profile and determine the extent of variation in the student personality profiles for the two methods of instruction.

Method. Four selected Michigan high schools with a total of 138 junior and senior vocational agriculture students participated in this study. Each teacher taught one class by the lecture-discussion method and one class by the individualized instructional method. The researcher prepared a 46-page guidebook and assembled grain grading slides that were used by the individualized instructional group; lesson plans and grain grading specimens of equivalent materials were prepared by the researcher for the lecture-discussion group. Both groups used the same grain grading laboratory equipment and grain grading samples, and they took identical pretest and posttest (Part A - paper and pencil and Part B - laboratory performance).

Student agricultural interest was assessed with the Pennsylvania Vocational Agriculture Interest Inventory; student overall academic rank was secured from the local high school counselor, and student personality was assessed with

the Guilford-Zimmerman Temperament Survey. Students in the individualized instructional group completed an evaluation form for the unit. One lesson for each method of instruction was tape recorded. A workshop for the cooperating teachers was held to provide teachers with mimeographed instructions and to answer any questions on the procedure to use.

Findings. The individualized instructional method was found to be significantly better than the lecture-discussion method of instruction. It was found that students acquired more knowledge and skills using a combination of psychomotor and cognitive skills than when using cognitive skills alone. Students in the individualized instructional group were more enthusiastic and tried harder, regardless of their academic rank. Student agricultural interest was related to student achievement when the assignment required the use of psychomotor and cognitive skills. Student academic rank was related only for cognitive skill requiring a mathematical calculation. The student personality profile revealed that there was no significant difference in the mean percentile rank of eight of the ten personality variables measured by the Guilford-Zimmerman Temperament Survey. The two personality variables, general activity and personal relations, were significantly greater, at the .05 level, for the lecture-discussion method of instruction. The student evaluation of the individualized instruction unit clustered toward the favorable end of the semantic differential scale. The tape recordings yielded no audio evidence that teachers deviated from the instructions presented at the workshop.

96. ROBERTSON, John Marvin, The Effect of an Occupational Information Unit of Instruction on the Expressed and Inventoried Interests of Vocational Agriculture Students in Selected Michigan High Schools. Dissertation, Ph.D., 1970. Library, Michigan State University, East Lansing.

Purpose. The study was an attempt to provide additional information so that teachers of vocational agriculture could better assist rural youth with the tasks involved in the vocational development process.

The objective of the study was to determine the effect which a unit of instruction regarding agriculture occupations might have on the occupational interests of students.

Method. The unit was taught in two Michigan high schools by teachers of vocational agriculture. The treatment population included tenth grade students enrolled in vocational

agriculture at Stockbridge Community Schools and eleventh and twelfth grade students enrolled in horticulture at Mason High School. The control group at Stockbridge was comprised of other tenth grade students matched with students in the treatment group on interest variables. The control group at Mason High School included classes of eleventh and twelfth grade students in production agriculture and vocational mechanics.

Outcomes were assessed in terms of the change in the direction, intensity, and clarity of student interests in agricultural occupations and the congruence of the interests with educational and occupational plans.

Three hypotheses were tested: (1) the students' inventoried interests in agriculture will increase more in treatment groups than in control groups; (2) the students' inventoried interests in agriculture will be more consistent in treatment groups than in control groups; and (3) the students in treatment groups will have inventoried interests more consistent with occupational choice than will control groups.

Situational data were gathered regarding the occupation of participants' fathers, years of vocational agriculture taken, and place of residence of participants. Descriptive data concerning the communities, the schools, and the vocational agriculture programs were included.

Findings. The eleventh and twelfth grade participants at Mason tended to have interests generally congruent with their educational and occupational plans. The tenth grade participants at Stockbridge tended to have interests that were not generally congruent with their educational and occupational plans. The majority of the tenth grade students at Stockbridge with inventoried interests in and plans for occupations in agriculture were not enrolled in vocational agriculture.

No significant differences were found and each of the three hypotheses was rejected.

The study did not present any data to support the teaching of information regarding occupations in agriculture to the participants in the manner taught or for the purpose of changing interests as measured by an interest inventory. The study did point to the need for some kind of educational or occupational experiences to aid high school vocational agriculture students in the vocational development process.

97. SCHNEIDER, Robert Moren, Perceptions of the Role of the Agricultural Equipment Industry in the Agricultural Mechanization Education of Developing Countries. Dissertation, Ph.D., 1969. Library, Michigan State University, East Lansing.

Purpose. The primary purpose of this study was to assist in improving the efficiency of agricultural mechanization education in developing countries by delineating the appropriate educational role of the agricultural equipment industry in developing countries, as perceived by individuals with international agricultural mechanization experience.

Method. A survey instrument was developed through review of literature and the assistance of representatives of the agricultural equipment industry and university personnel who were experienced in agricultural mechanization in developing countries. This instrument contained 50 items which were sub-divided into clusters pertaining to the agricultural equipment industry assisting in agricultural mechanization education within the context of the educational systems of these countries, assisting outside the educational system of these countries, assistance in the form of instructional aids, workshops and seminars, and scholarships and grants.

The instrument was answered by 86 individuals who had agricultural mechanization experience in a total of 33 developing countries. The respondents were asked to indicate their perceptions to the appropriateness of the agricultural equipment industry's involvement in the activities by rating the items on a five point scale of appropriateness.

To identify differences in responses that might be due to various backgrounds of the respondents, they were divided into sub-groups by nationality and occupation. To identify differences in responses that might be due to location or levels of development of the countries represented, the countries were divided into sub-groups by geographical location, levels of economic development, and levels of educational development.

The frequency of the responses were tabulated and the results were analyzed by the use of the one-way analysis of variance test to identify significant differences in responses.

Findings. Based on the perceptions of the respondents, the agricultural equipment industry should direct its assistance towards the secondary, post-secondary, and university

levels of education but not towards the elementary level. This assistance should be in the form of instructional aids directed towards the area of engine powered agricultural mechanization. The respondents did not perceive it appropriate for the agricultural equipment industry to assist in animal powered agricultural mechanization education or become involved in literacy education. Assistance in the training of mechanics and in-service education of government personnel working in agricultural mechanization also appeared appropriate for the agricultural equipment industry.

There was a high level of agreement among the sub-groups when the respondents were divided by nationality and occupation. When the countries were divided into sub-groups by geographical location, levels of economic development and levels of educational development, there were significant differences in few of the responses. This indicated that educational assistance programs of the agricultural equipment industry, as perceived by the respondents, can be very universal in nature.

The language may need to be translated and different specialized machines covered to fit the crops of a particular country but it does not appear necessary to emphasize financial aids in one area of the world, instructional aids in another, and the development of a program of workshops and seminars in a third part of the world. Instructional aids ranked high in the study; and, if series of these were developed by the industry, they could be utilized in many parts of the world with limited modification.

Conducting workshops and seminars for agricultural mechanization teachers was perceived appropriate by the respondents and could serve as a diffusion channel for any instructional aids that the agricultural equipment industry might develop.

98. THOMAS, Hollie B., Changing Teacher Behavior: An Experiment in Feedback from Students to Teachers. Dissertation, Ph.D., 1969. Library, Purdue University, Lafayette, Indiana.

Purpose. The primary purpose of this study was to determine the effect of feedback of students' opinions about their teachers' behavior on the teachers' behavior. As secondary purposes the answers to these questions were sought: (1) are there significant differences in the students' rating of their real and ideal teacher? and (2) are there significant differences on scales of teacher behavior for teachers of various ages?

Method. Fifty teachers of vocational agriculture, selected randomly from a population delimited by the criteria of geographic area, subject taught, number of students and number of classes, were randomly assigned to treatment groups. A pretest-posttest control group design was selected. The 136 item opinionnaire designed specifically for use in this study was factor analyzed to obtain factors of teacher behavior.

Findings. The hypotheses were tested by analysis of covariance and analysis of variance. The results of the study were: (1) there were no significant differences between the treatment groups on any of the factors of teacher behavior when the posttest teacher means were tested by analysis of covariance with the pretest means as the covariate; (2) when the real and ideal teacher mean factor scores were compared, significant differences were found on all factors; and (3) teachers of various ages received ratings which were significantly different on all factors of teacher behavior.

Results of this study indicate that providing teachers with knowledge of student opinions about their teaching is not a powerful enough change agent to induce change in teaching behavior as viewed by students. This implies that in addition to knowledge of student opinion frequent and intensive help to teachers may be necessary to change teaching behavior.

99. THOMAS, Hollie B. and LEIGHTY, George W., Knowledges and Skills Needed by Employees in Agricultural Supply Business: A Comparative and Factor Analytic Study. A Research Report, 1970. University of Illinois, Urbana.

Purpose. The primary purpose of this study was to determine if changes were needed in agricultural supply curriculums by ascertaining if there was agreement among employers, student-trainees, and teachers of agricultural supply programs at the junior college level regarding the need for certain knowledges and skills by employees in agricultural supply businesses. As secondary purposes, the answers to these questions were sought: (1) are there significant differences among the means of the ratings given by employers of the various types of agricultural supply businesses to certain knowledges and skills needed by employees in agricultural supply businesses? (2) can factor analysis be used to group knowledges and skills into meaningful categories for instruction? and (3) which knowledges and skills included in the questionnaire were considered to be needed by employees in agricultural supply businesses?

Method. Utilizing the findings of recent studies, the Agricultural Supply Business Questionnaire was developed specifically for use in this study. Junior colleges in Illinois that were listed as having agricultural supply programs by the State Vocational and Technical Education Division were contacted to determine their willingness to cooperate. Names and addresses of students and employers were obtained from all colleges identified as having agricultural supply programs. The 100-item questionnaire was mailed to all instructors, student-trainees and employers.

Findings. Answers to the questions were sought by employing analysis of variance and Varimax factor analysis. Results were: (1) few significant differences (5 of 100) were observed among the mean ratings of the need for the knowledges and skills rated by students, employers, and instructors; (2) significant differences were observed among the ratings of the six types of agricultural supply businesses identified for nearly one-half of the knowledges and skills included on the questionnaire; (3) the Varimax factor analysis of the employers ratings yielded six meaningful factors. These factors were: (a) agronomy, (b) livestock and feed, (c) sales and business operations, (d) management of agricultural supply businesses, (e) work habits, and (f) educating and communicating with customers; and (4) an average rating of five or greater on a nine-point scale was attained for the employer, student, and instructor groups on 80 of the 100 items included on the questionnaire. These 80 knowledges and skills were considered to be essential for employees in agricultural supply businesses.

100. THUEMMEL, William Leslie, High Schools and Vocational Agriculture Schools: A Comparison of the Farmer-Performances of Their Senior Graduates in Taiwan. Dissertation, Ph.D., 1970. Library, Michigan State University, East Lansing.

Purpose. To provide a comparative analysis of the farmer-performances of two kinds of secondary school (high school and vocational agriculture school) senior graduates in Taiwan.

Method. The population studied included all 1950, 1955, and 1959 male senior graduates, of (academic) high schools and vocational agriculture (V-A) schools located within a five-hsien (county) area of west-central Taiwan, who were classified as operators of family farms during 1967 and

whose farms were located within the boundaries of the survey area. Through use of a two-step identification system, 215 members were selected for the study (203 graduates--46 from high schools and 157 from V-A schools--were interviewed). Data were obtained with the use of a comprehensive interview schedule. The focus of analysis was upon determining the relationship between kind of schooling and various dependent variables regarding the graduates' personal and farm characteristics, farming performances, participation in formal organizations, and perceptions and opinions about schooling for prospective farmers. The chi-square value was used to test for relationships.

Findings. Of the 35 general information and farmer-performance variables for which contingency tables were computed, analyzed, and presented, only three were found to be related to the kind of schooling completed by the graduate. Directional interpretations of the three significant relationships revealed that: (1) agriculture was the occupation of the parent, at the time the graduate entered secondary school, for a greater percentage of V-A school graduates than of high school graduates; (2) a higher percentage of wives of high school graduates than of V-A school graduates completed nine or more years of schooling; and (3) high school graduates had higher livestock sales per farm during 1967 than did V-A school graduates. The relationships between both farming performance and kind of schooling, and participation in formal organizations and kind of schooling were found to be not significant at the $p \leq .05$ level.

It was found that V-A schools were a greater continuing source of farm information and/or assistance to their graduates on farming problems than were the high schools to their graduates. However, V-A schools ranked considerably lower than several other sources. A greater percentage of V-A school graduates, than of high school graduates, perceived their kind and level of secondary school education as being most appropriate for prospective farmers. The opinions of both kinds of graduates were secured in regard to the school program which they had completed and its relevance to farming. Most of the graduates were of the opinion that their courses had been too theoretical and that not enough time had been spent in the laboratory or field. Over 80 per cent of the V-A school graduates agreed that V-A schools should have offered classes to farmers.

The V-A schools may have had considerable indirect influence on Taiwan's agricultural development, primarily by preparing large numbers of agriculturally-trained semi-professionals, technicians, and specialists to staff positions in various agricultural agencies and organizations.

101. VERNON, Edwin Wills, Communications as a Factor in Non-Farm Agricultural Employment. Dissertation, Ed.D., 1970. University of Illinois, Urbana.

Purpose. The purposes of the study were to: (1) identify the words agribusiness employers associated with success in an employee; (2) determine whether or not pupils at the four high school grade levels and three socioeconomic status levels differed significantly in their connotative understandings of the words associated with employee success; (3) determine whether or not pupils at three socioeconomic status levels and four levels of agriculture occupations course work differed significantly from employers in the perception of their responses to certain terms; and (4) determine whether or not agriculture occupations teachers could accurately perceive the connotative responses of agribusiness employers to the test concepts.

Method. Forty-seven randomly selected agricultural business employers assisted in developing a list of 21 words. These are the words that interpret the traits that contributed most to employee success. The 21 concepts were arranged on a semantic differential scale and administered to 339 agriculture occupations pupils from ten randomly selected Illinois high schools. The pupils were grouped into three socioeconomic status levels and four levels of course completion for the analysis of responses. Responses were compared by multivariate analysis of variance techniques. Seven pupil groups and one group of agriculture occupations teachers were compared with employers in their responses to the stimulus concepts.

Alternating the test forms as they were distributed divided the pupils into the two major groups, "A" and "B." The two groups were those pupils responding as themselves and those pupils responding as employers.

The 39 teachers were stratified by size of department enrollment, randomly sampled, contacted by phone, and surveyed by mail.

Findings. (1) Twenty-one of the concepts identified by the employers as being essential to successful employment in agribusinesses were used as stimulus concepts; (2) the responses of the teachers differed significantly from the responses of employers on 12 of the 21 concepts. The employers valued each of the significant terms more highly than the teachers estimated they would; (3) the term "enthusiastic" was a statistically significant term in each comparison. In each analysis the employers valued this

term more highly than the comparison group; (4) socioeconomic status did not seem to be a factor in the perception of the employers' responses. However, the lower socioeconomic status pupils were the only group who failed to respond to any of the significant stimulus concepts more favorably than the employers; (5) socioeconomic status was not identified as a significant factor in determining the differences in the responses of the pupils and the employers tested; and (6) high school grade level could not be identified as a significant factor in the pattern of response or of perception of the employers' response to the stimulus concepts.

102. WAMHOFF, Carroll H., Self-Concept of Vocational Ability: Its Relation to Selected Factors in Career Development. Dissertation, Ph.D., 1969. Library, Michigan State University, East Lansing.

Purpose. The major problem of this study centered on two concerns. One was an identification and assessment of the construct "self-concept of vocational ability," (SCVA); the second was concerned with the relationship of this construct to other factors said to influence the career development of individuals.

The problem of this thesis evolved through a critical review of literature pertaining to the emperical relationships between the self-concept and vocational choice/development.

Method. The sample for this investigation consisted of 139 males and 222 females. All were Caucasian. They were residents (or had been during their high school years) of a midwestern city of approximatley 120,000 population.

An orientation based upon the symbolic interactionist theory to human behavior was developed. Nine general hypotheses were obtained and tested from that theoretical orientation. Two scales were developed to measure the SCVA. Questionnaire items were created to identify the Self Evaluation of occupational level ability, the perceptions of others of occupational level ability, and the analysis of significant other categories within this operational frame of reference. The association of the SCVA to the SCAA was described among such groupings as vocational and non-vocational students, and college four year, college two year or less, and non-college individuals. The relationship of the SCVA was further analyzed in terms of its relationship to other variables related to vocational development. These variables included vocational interests, aspirations and expectations, and socioeconomic status level.

Findings. A substantial relationship was found to exist between the Self Evaluation variables and the perceptions of others of the evaluation and expectation of occupational level ability for both males and females. On the other hand, there was little relationship between data from the SCVA scales and the perceived evaluations of others of occupational level ability.

Parents are the most frequently listed category of significant others in terms of academic endeavors and vocational careers. The proportion of males and females who list parents first as academic significant others is greater than the proportion of males and females who list parents first as vocational significant others.

The SCVA was highly correlated with the SCAA for college males only. Besides this group, however, the strength of relationship between the two self concept variables diminished.

The SCVA of individuals who were classified as vocational students was equal to those classified as non-vocational students. Conversely, the SCAA of individuals who were classified as vocational students is not equal to the SCAA of individuals who were classified as non-vocational students.

The SCVA was found to be unrelated to several factors often utilized by others in the study of vocational development. For example, no significant relationship was found between the SCVA and socioeconomic status (SES) of vocational significant others or the SES of parents. These findings support the contention that the SCVA may operate irrespective of the SES of various occupations or the SES of significant others.

103. HASHIM, Mohamad Yusof, The Aspirations and Expectations of Malaysian Agricultural Pupils and Students Regarding Occupations and Education. Dissertation, Ph.D., 1970. University of Illinois, Urbana.

Purpose. The main problem of the study was: (a) to determine what kinds of aspirations and expectations the pupils and students of the Malaysian agricultural institutions have and whether or not their aspirations and expectations are related to certain selected socio-economic and cultural factors; and (b) to determine what pupils and students feel their problems are in making decisions about their occupational and educational plans and what they feel they need in terms of information and guidance to help them with their plans.

Method. The study was conducted using as subjects (a) 103 second-year vocational agricultural high school pupils of the School of Agriculture, and (b) 145 third-year and 165 second-year post-high, pre-university students of the College of Agriculture, Malaysia.

Data were secured through the group administration of a questionnaire, in which participants responded to items listed on questionnaire forms. Percentages, frequencies and chi-square techniques were the main tools used to analyze the data. Chi-square tests determined whether or not null hypotheses could be rejected at the .05 level of significance.

Findings. A majority of the pupils and students who participated in the study aspired to achieve occupational placement and education in the high level categories, if they had their choice. However, cognizant of the various limitations they had, both personal and environmental in which they had little control, a majority of them did not expect to be able to achieve their aspirations. Many were uncertain about their future educational plans and thus expected to be employed in occupations concommitant with the level of training and education they were receiving from the institutions in which they were enrolled, at the time of the study.

Due to the rather homogeneous backgrounds of the population studied, the majority of the selected socio-economic variables had no direct influence on the participants' aspirations and expectations. Those factors that were found to be related significantly to participants' aspirations and expectations were sex, father's educaticnal status, father's income, father's occupation, past farm experience, and academic standing.

The majority of the population studied indicated that they had neither a problem of deciding what kinds of occupations were suitable to them nor a problem of getting employment upon graduation from the institutions in which they were enrolled at the time of the study. However, they maintained they had problems of one form or another if they desired to continue their education and plan for future jobs. They indicated that they wanted help and information to assist them in overcoming their problems.

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